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LITERATURE IN THE ELEMENTARY SCHOOL.

I.

THE school exists to help home and society make a human being out of the undeveloped human animal. Before the help of the school is sought, family, society, and the outdoor world have for six years been stimulating and guiding the child's development. Already, through contact with home life and with such phases of social life and earth life as inevitably come in his way, the child is coming to himself, is being humanized. If he has had half a chance, his senses are alert, though uninstructed; his mind inquisitive as to the what and why and how of things; his imagination active in creating out of the material supplied by his limited experience a world of vivid interest, though of false proportions and distorted relations. Already he loves and hates and laughs and cries. He is unjust and generous, quickly moved to anger and to grief. He is affectionate and cruel, envious and full of admiration. He finds joy in destruction and greater joy in creation. To himself he is the center of life, and already the human hunger for life is pricking him. He is weak in body, feeble in judgment, ardent, ignorant, with measureless capacity for pleasure and pain and unknown potentialities of thought and action. And, like every other soul endowed with life, he is driven by the need of expansion, the instinct of self-realization.

Some such being as this it is that the school opens its doors to. This being it must make into the man, the woman. This crescent life it must nurture into the full life of man. The vital force, the all but creative power, by which the transforma-

tion is wrought, is in the child. It is the business of the school to provide nutriment and create conditions for free and unimpeded growth.

To be a full-grown man or woman, at home on earth, with free, natural, and true relations to all its creatures, requires, we are all agreed, knowledge, dynamic knowledge—knowledge of the earth, of its constituent physical forces and its movements, its relations to sun and moon and stars and sister-planets; knowledge of its elements and their modes of behavior singly and together; knowledge of the all-embracing atmosphere, its relation to life and to the earth; knowledge of plant life and animal life, their friendships, enmities, and interdependence, and all the ways in which they change, support, and control the life of man. Further, the developed human being must both so understand his own body as to know how to keep it in health and make it do full work in the furtherance of his ends, and so command his own mind and senses and their processes that he shall perceive truly, reason accurately, and judge aright. We agree also that full-grown men and women must have such knowledge of the organization, institutions, and industries of the society they live in that they may adjust themselves to this society with the least friction and in turn bend it most effectively to the service of worthy ends.

So far we are pretty well agreed. After a fashion we have been shaping our courses of study accordingly, and with more or less blundering have been trying to use them to such informing and transforming of the child. Astronomy, physics, and chemistry; geology, geography, physiography, and meteorology; physiology and hygiene; geometry, arithmetic, and algebra; zoölogy and botany; history and even civics and something of sociology and political economy have thus deservedly, however awkwardly and tentatively, found place even in our elementary courses. Through them we are guiding the boy and the girl to some knowledge of their habitat and power over it, and to certain phases of self-knowledge.

Formidable as this array of subjects is, however, and all-inclusive as it seems, it leaves too little touched certain aspects of human nature and certain relations of man to his environment.

Nor are these neglected aspects and relations unimportant. Rather, they may be said to be of all phases and relations of man's life the most distinctively human.

To be full-grown men and women, really at home on earth, with free, natural, and true relations to all its creatures, requires more than knowledge of our physical environment, of our dependence on it, and of our power over it; more than knowledge of historical and present conditions of organized society. Back of society lies human nature in the concrete as it exists in countless individual men and women. It is concrete human nature that is the source of society. It is individual men and women that at any given moment make the visible body of the society in which we live. It is the characters, motives, passions, wills, of these men and women that meet and clash, coalesce and struggle, with ours. And out of this confused struggle come the gravest issues of life. Our wills are determined to good and evil; our vision is blurred and narrowed to take in merely the petty, the sordidly personal, or opened wide and clear to the spectacle of the world-life; our spirits learn to cringe before the lightest blows that life inflicts or to meet full-front the most fatal. This concrete human nature, then, in ourselves and in our fellows, we need to know as surely as we need to know physical nature. It is well to know how grass grows and plants behave under given conditions of moisture and light and shade; it is also well to know how men and women feel and act in the ever-changing conditions of life. It is essential to life to have for nature and natural forces the respect that comes from knowledge of their power; it is also essential to feel in the presence of a human being the noble respect that springs from a knowledge of the soul's possibilities. It is necessary to have such comprehension of natural forces that we may use them to our own ends instead of being crushed by them. It is equally necessary so to understand the moral and spiritual forces manifest in the actions of men that we may make them show their power beneficently in co-operation with us to the attainment of worthy living rather than retributively in bringing us to destruction. We may, if we will, leave boys and girls to get their knowledge of

this moral, emotional, and spiritual world, and their adjustment to it, from actual experience with it in themselves and others. Much of their knowledge can come in no other way. It is only by contact with life that we can learn what it is. But if boys and girls are to reach maturity with a fairly intelligent understanding of themselves and of the human world in which they have been living under more or less careful guidance, and in which they are to go on living more and more self-directed, they need to be brought into contact with far more of life than the actual conditions of their individual worlds are likely spontaneously to offer. They need very early to be admitted to the great world of universal human life. And the open doorway to this world is literature.

The function of literature in the life of the child is in no essential respect different from its function in the life of the adult. To both alike it is the great interpreter of the life they find in themselves and immediately about them, and their guide into the life that lies beyond those narrow confines. It is the great initiator into life and the great enlarger of life. In fulfilling these functions truly, it almost necessarily supplies large increase of joy and brings into somewhat better tune the clamorous and jarring strings of individual life.

The fitness of literature for these functions is dependent on three aspects of its own nature. It gets its power from the fact that it is an embodiment of life concrete, broadly comprehensive, and artistic. On these three aspects of its nature, and on the needs of the growing boy and girl, depend also both our choice of material throughout the school course and our handling of the material chosen. It is worth while, then, to linger a little over our meaning here.

The life that we ourselves live is no abstraction. From the least pin-prick of the flesh to the long-borne agony that at last wears out all the reserve force of body and soul, it is real. From the mere sense of physical well-being to the keenest thrill of joy the heart can know; from the faintest stirring of the moral sense to the fullest pulse of the moral life; from the primitive pleasure in bright color or discordant noise to the painter's and

the musician's delight in harmony of color and tone—it is real, concrete, individual. The world we live in is equally concrete. It is a particular broken brick in a particular walk that trips us. It is a particular group of arching tree-tops outlined against the smoldering sunset that deepens our loneliness and calls up homesick memories. It is hands of flesh and blood our hands move to clasp. The perplexities that beset us, the joys that enlarge our lives, our loves and hates and hopes and fears, have definite content. And when we worship even the Unknown God it is no abstraction we worship—though unseen, unheard, beyond our grasp, it is an actual something dimly divined as the working force of the universe.

It is this actual, concrete, individual life in which we are plunged from birth to death that haunts us, bewilders us, allures us, provokes in us an insatiable hunger and thirst. It was this same life that haunted the author of *Job*, of the *Iliad* and *Odyssey*, of *Agamemnon*, of *Œdipus*, and of *Alkestis*. It was this life that drew the feet of Dante down the narrowing circles of hell, up the hard slopes of the purgatorial mount, even to the heights of heaven. Shakspere fixed upon it his steady, all-comprehending gaze. The primitive peoples who gave us our folklore heroes, the nameless singers of ballads, the proverb makers, the writers of the great epic, the drama, the novel, the lyric, the essay—all have felt the fascination of this same life, have struggled to comprehend it, to master it; and, as far as their creative power has availed, they have reproduced it in literature. And in literature we find it, concrete life still, though revealed only through symbol—men and women and children with blood in their veins, love and hate and strength and weakness in their hearts, and a tangle of thoughts and purposes in their minds. And since it is actual life we find there, it holds us in books as it holds us out of books. We live in it as truly, and, whatever its scope, to the measure of our capacity to understand and make it our own it gives us increase of joy, increase of pain, increase of sympathy and wisdom, increase of power to understand and to do—enlargement of life.

The range of literature, moreover, is immense. It is coex-

tensive with life. It is a far cry from the topsy-turvy world of *Mother Goose*, with its glimmers of sound sense and feeling and its insistent rhythm, to the titanic passion and the wisdom and beauty of *King Lear* and its orchestral harmonies. Yet literature comprehends them both. We leave childhood behind us, but the child-world lives on "exempt from age and immortal" in *Cinderella* and *Beauty and the Beast*, with Mowgli and Gray Brother in the jungle, and in the enchanted *Child's Garden of Verses*. Childhood and youth, manhood and age, meet and mingle and abide in the wide bounds of the Homeric world, flooded with sunshine, swept with storm—a manly world, resolute, much-enduring, much-achieving. Romance dwells forever with Aucassin and Nicolete; with Robin Hood in Sherwood Forest; in that other enchanted forest where Rosalind holds sway; in Verona, where the song of the lark hastens the lingering Romeo from Juliet. It lives with Roland at Roncesvalles, with Arthur and his knights, with Guenevere and Iseult, and, touched with the compassionate wisdom of a great spirit, it abides with Francesca even among the restless shadows of the dolorous world where hope is not. Literature, too, like life itself, is veined with love of earth the bread-giver and all-sustainer, of earth the great mother, earth the friend and gypsy comrade, smiling, guileful, open-hearted, moody, wayward, steadfast, and faithful. The darker passions haunt the world of literature as of actual life. Sordid lives jostle the magnanimous, and cowardly or cruel souls bring to naught all the striving of the noble. Thersites rails at Agamemnon, and Paris leaves to Hector and to Ilium the atonement for his sins. The guilty perish and the innocent perish with them. The soul struggling with its own conflicting passions and aspirations sinks into ignoble depths or rises into serene air. The doubts of the mind, the weaknesses of the heart, the shrinking of the spirit—literature holds them all, reveals them all. And it holds and reveals the fairer aspects of life—human kindness and simplicity, tenderness, honor, brotherly love, motherhood and fatherhood, mirth that lightens the heart, and love and sorrow that exalt it.

And all this concrete, wide-ranging life literature presents in

forms of art. In the making of literature, as of any art-product, the seeing eye co-operates with the interpreting spirit. Together they look upon some portion of life till they catch its meaning, pierce through the multiplicity of its seeming to its unity of heart. Then under the influence of the creative impulse, deepest-seated but one and divinest of human impulses, the selective judgment and the constructive imagination choose whatever is essential to this unity, reject the non-essential, separate and combine the chosen material into an ordered whole, and even in the act — miracle of genius forever unexplained — breathe into their own work the breath of life. The so-called art-product is no mere product; it is life. It is life created, indeed, by the artist, but independent of him and by right taking its own place in the world of actual existence. It differs from the world of natural creation not so much by the reality and truth of the latter as by its own comparative simplicity. By one other trait also, resulting like the simplicity from the act of the selective judgment and constructive imagination — a more easily apprehended beauty.

And this comparative simplicity and beauty of the single work of art, along with its vivid reality and the wide comprehensiveness of the art-world as a whole, makes the work of literary art and literature as a whole peculiarly an interpreter of life to child and adult, a liberator from the confining bounds of personal experience, and a source of noble pleasure. It is these characteristics that make literature of incalculable service to the development of the human being and well-nigh indispensable from beginning to end of our course of study.

But that which is capable of service may fail to render it; that which is by nature absolutely indispensable to growth may even dwarf it. Whether literature shall render children its proper service depends on what literature we bring to them and how we bring it. And these are matters to be considered in later papers.

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THE FOUNDATIONS OF ENGLISH GRAMMAR TEACHING.

BELOW the idiosyncrasies of English grammar lie the features common to all grammar. To study English grammar as English grammar is certainly preferable to studying it as Latin grammar, but neither method absolves from the necessity of studying it primarily and fundamentally as grammar. The basic conceptions of grammar, as distinguished from those of mathematics, say, or of geology, must underlie and condition all intelligent study of the grammar of any particular language.

These basic conceptions may easily be reduced to two: (1) the nature of language and (2) the structure of language forms. From these all other grammatical conceptions are derived. Few treatises on the grammar of any language state explicitly their underlying theories upon these two essential points, and no judicious teacher would for a moment entertain the idea of doing so. But without explicit statement both teacher and text-book continually convey to the mind even of the dullest pupil some notion, perhaps rather some half-conscious image, of the essential nature of language itself, and of its various structural forms. A definition of conjunction or of preposition, a rule for the agreement of subject and predicate, an explanation of the classification of nouns—all are capable of suggesting such images, not solely or even necessarily by their obvious content, but by what some are pleased to call their "mere phrasing." How potent a factor this "mere phrasing" may be in the formation of primary conceptions in grammar can be fully appreciated only by those who are able to recall with vividness the mental pictures suggested by their earliest studies in this subject.

To the writer, for instance, the word "language" always gave rise to the mental image of neat piles of counters or coins, variously stamped, ready to be looked over, chosen from, and arranged in certain patterns to make sentences. This image persisted dimly for years after the exact forms of statement

which had suggested it were forgotten. But turning back to the *Language Primer* first studied, the sources whence this picture was derived become apparent. The *Primer* said, of course, that "language is a medium of expression" and that "a sentence is a form of words that expresses a complete thought;" but these abstractions passed meaninglessly through the childish mind, while the concrete images corresponding to these further statements made a lasting impression: "Each word has its own meaning, stamped upon it by custom," and "Language is made up of words combined according to the rules of grammar."

Different, though parallel, mental pictures were recalled by a class of college juniors and seniors in answer to the question: "What image stood for the sentence in your mind when you first studied grammar in school? What did you then think a sentence was for?"

To avoid preconceptions, no explanation of these questions or of the occasion for asking them was given. Some students were, of course, conscious of no definite image. Others saw the sentence always in terms of the formal diagram they had been taught to use. The remaining answers are represented by those quoted below:[1]

"Unconsciously I always saw a sentence in the form of a train of cars, such as my little brother played with at the time when I began to study grammar. I never thought a sentence was for anything but to study."

"I always thought of a sentence as made up of square wooden blocks, strung along in a line. It seemed to me I could never get the edges to fit exactly. Its use, according to rule, was to state a fact; but this phrase had no meaning to us, for our favorite example was 'The cat and her kittens' and when this failed to satisfy, we gave 'The hen and her chickens.'"

"The noun in the subject was always a big blue bead, the principal verb a big red one. The other words were smaller beads of different colors, some of the adjectives following and some preceding the noun, the adverbs, and adverbial phrases somewhere near the verb. Sometimes I thought of this string of beads as coming out of my mouth, but that never seemed really true."

[1] A similar inquiry was made several years ago by Professor F. N. Scott, of the University of Michigan, and the answers presented in a paper entitled "The Figurative Element in the Terminology of English Grammar."

"A sentence looked to me like squares ruled off on paper and fitted together somehow — always in a different pattern, it seemed. I saw no use for it as I saw no use for grammar at all. A sentence was as much a thing by itself and as isolated from everything else as a puzzle put on the blackboard for me to solve would have been. It was built up by somebody just as a block-house might have been — for no purpose but to pull it down again."

"The teacher used to have us make sentences, one containing an abstract noun, one a proper noun, etc. I used to build them like card-houses, and thought of them as something of that sort. The only thing I ever thought they were for was to put together and tear down again in studying grammar."

"A sentence in grammar looked to me when I was a child as it does now —like a square of crazy patchwork. I don't, however, think of a real sentence in this way—one that comes in my reading, I mean."

"A sentence wasn't anything to me, as a child. It couldn't look like anything, because it really wasn't anything but a word used in a grammar. I thought the book had made it up. But I remember when we analyzed sentences I always thought of the way my 'dissected maps' at home fell to pieces if you tried to take them up."

Trivial enough are these images, but perhaps not wholly unsuggestive of the ideas of sentence-structure, hence of language-structure in general, derived by these young students of grammar. It is apparent, first of all, that the sentence, which we are fond of calling "the unit of language," was not to these students, so far as we may judge from their statements, a "medium of expression" or a "means of communication" at all. Doubtless it was so named by every grammar studied; but, once named, was straightway treated, not with apparent reference to its function in transmitting thought, but exclusively in terms of its form, as a collocation of words. This latter conception has no obvious relation to the former and is much more readily intelligible to the child's mind. He has many analogies at hand—the string of beads, the train of cars, the heap of coins, the block of pieces in crazy patchwork, the card-house, the dissected map. These are all wholes made up of separate things put together in a certain way. Hence a similar conception of sentence-structure is easily grasped, once it is suggested to the child's mind in any concrete fashion.

And such suggestion, it must be admitted, is seldom wanting. Glance over the introductory pages of almost any standard text-

book of English grammar, and one finds them fairly bristling with implications of the *e pluribus unum* theory of language-structure. One of the most widely popular manuals, Whitney's *Essentials of English Grammar*, is perhaps the most explicit in its suggestions of this conception. Note the following quotations, all taken from the second chapter, defining the parts of speech:

"Our language, like every other, is made up of words."

"*Shine, move, twinkle* . . . . are not names: they are words which we put with names . . . . to state or declare something," etc.

"This name, 'part of speech,' given to a word, plainly implies that there is something incomplete about it; that it is not a whole, but must be joined with other 'parts' in order to make a whole, in order to be speech. That is in fact the case; and the whole which these parts make up is called the sentence."

"For a sentence there must be, not only words of more than one kind, but words of certain kinds, fitted together in certain ways."

"We cannot . . . . make a complete sentence without joining together a subject and a predicate."

"[A noun] can be put along with a verb to make an assertion."

"Some verbs are very rarely used alone as predicate, but are made complete predicates by other words added to them."

"The word *the* . . . . can only be used along with a noun as an appendage to the noun. Other examples are *golden* and *white*; . . . . each is added to a noun . . . . to describe the thing of which the noun is the name."

". . . . its name, 'adjective,' signifies merely something 'added'— that is, added to a noun by way of description."

"A noun and an adjective joined together will never make a sentence; . . . . but we can make either an adjective or a noun a part of the assertion about a noun or a pronoun, if we join the two together by a verb."

"A word thus used is called an *adverb* because it is added to the verb in much the same way and for the same purpose as the adjective is added to the noun."

". . . . The word [preposition] means simply 'placed before;' and they are in fact usually placed before the noun or pronoun which they are to connect to another word."

"The other kind of connecting word is called a *conjunction*; that is, a word that 'conjoins' or 'joins together.'

"Sometimes . . . . the conjunction does hardly more than add one sentence on to another."

"A conjunction is a word used to connect sentences together."

"[Interjections] are not parts of the sentence itself; they are not put together with other parts to make up sentences."

The words "joined with" "added to," "put with," "put together with," or "put along with," "connect together," recur continually, bringing inevitably their corresponding images of the spatial juxtaposition and the mechanical aggregation of originally separate parts. The article is "an appendage" to the noun. A sentence is once explicitly described as consisting of "words of certain kinds fitted together in certain ways," while one part of speech "must be joined with other 'parts' in order to make a whole, in order to be speech."

It must, indeed, be a pupil more insensitive than are most children to visual suggestion who does not derive from expressions like these a conception of language-structure which is purely mechanical. But whence is drawn the notion of language-function admitted by the answers transcribed above and only too familiar to every observant teacher of grammar? Why should the young student never think "a sentence was for anything but to study," or unconsciously assume that "the book had made it up"? Why should one writer distinguish so pointedly between "a sentence in grammar" and "a real sentence—one that comes in my reading, I mean"? This is negative testimony, to be sure, but possibly none the less significant. It would, on the face of it, seem to indicate that the all but universal declaration of the treatises on grammar, "Language is a medium for the communication of thought"—or some equivalent statement—has failed of vital contact with the child's mind. But why has it thus failed? Because of its abstract formulation, doubtless; but, had it been in the minds of the grammarians an active principle, a real working hypothesis, would this abstract statement not have been supplemented, explained, made concrete in the terms used throughout the treatise? Would it not continually have come to light, as does the underlying conception of language-structure, not by intent, but unconsciously and of necessity? In that case it must have been stamped upon the student's mind, as was the parallel conception, becoming to him, not a mere form of words, but a living image, a factor to be reckoned with in his thinking.

It is undoubtedly true that the idea of language as the communication of thought finally conditions the current definitions

and rules in grammar. For instance, the definition of the sentence twice quoted above yields in last analysis such a philosophy as this: "A sentence conveys a thought from the mind of one person to that of another. A thought is made up of separate parts or elements brought together. One thinks of a thing or object in the world, and then of an action, and, putting the two thoughts (or parts of thoughts) together, he is able to think a whole thought (technically a judgment). So, in order to set up this thought in another person's mind, one must add a word which represents a thing to one which represents an action, and thus he has a whole sentence which represents a complete thought." But so far is all this implication in the background of the definitions or rules involving it that the sentence easily becomes to the pupil an end in itself, made for the sake of making it, according to rules which determine how it shall be constructed to satisfy tradition or convention, rather than the particular need of a specific situation. Seldom does a rule in grammar refer directly to the end which the sentence seeks. Seldom does a definition recognize this end. To the untrained student it may well seem that the sentence, once imprisoned between the covers of a grammar, is cut off from the process that gave rise to it, the situation which conditioned it, and "analyzed" as a dead unmeaning thing, the string of words printed across the page, the form *qua* form.

Justifiable and inevitable though such an impression may be, the keener analyst can perceive the correspondence already pointed out between language-structure as inorganic and language-function as that of thought-communication. There is no essential inconsistency between these two fundamental conceptions. Provided only thought itself be composite in structure, its communicating medium, its linguistic representative, may be a patchwork sentence. The condition is, however, we must note, denied by real logic and modern psychology. Thought is not a heap of shreds and patches, a whole made up of previously separate parts, but a single, differentiating organic process. It is not the sum of its parts, but their source no less than their end. One in its most primitive form, it gives rise to its ele-

ments, though never losing its essential unity in them. It grows by differentiation, as does a plant or an animal; not by aggregation, as do inorganic substances. Thought, in fact, *is* this growth, this movement, not in any sense a substance or a thing.

Passing from one mind to another it becomes visible, tangible almost, as language. Language is the tracing of this mental activity, "representing" it thus in no mechanical sense of remote correspondence in a different world, but as the same activity traversing another medium. It cannot, then, be a dead, fixed thing, a form dissociated from its function, but a living process, requiring intelligent scientific observation under normal conditions. The day of dried and pressed specimens of language as material for serious study is over. Our profounder knowledge of mental phenomena has finally discredited all investigation of the phenomena of language on a purely formal basis.

We come, then, face to face with the foundations of English grammar. It rests upon some definite conceptions of language-function and language-structure, the former ultimately determining the latter. The function of language as thought-communication is a faith all but universally professed, though at times it may be with the lips only. There is no such agreement as to the structure of language. To some writers it is essentially organic, to others inorganic or mechanical; the difference referring directly to different notions of the structure of thought itself. One conception of language-structure or the other is, however, conveyed by every text-book to its readers and by every teacher of grammar to his pupils. It therefore behooves the teacher to examine his foundations, to determine with his best intelligence their stability, and to upturn them ruthlessly if they are, in his judgment, unsound.

The final test of their soundness and adequacy lies, of course, not wholly within the field of grammar itself, as popularly understood. The act or process of communication by language furnishes the peculiar subject-matter of rhetorical and philological, as well as of grammatical, study. It must be investigated also by workers in the fields of psychology, real logic,

æsthetics, and sociology. The conclusions reached in this larger and at present more disinterested study are bound to serve as touchstones for the fundamental conceptions of grammar.

When thus tested and thus established, the conceptions of the function of language as essentially social and of the structure of language as essentially organic should manifest themselves consistently throughout the teaching of English grammar. How this may be done is, indeed, the present problem. To define the parts of speech in terms of sentence-function instead of sentence-anatomy, to refer each rule for sentence-structure to the process of communication rather than to some apparently arbitrary traditional pattern — all this is necessary theoretically, but has not yet been practically demonstrated. Such demonstration is, however, inevitable, and cannot long be delayed. It must be hastened by every honest effort to face the implications in our present teaching of the subject and bring them to the test of our profoundest knowledge of the language-process.

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A PLEA FOR OUTLINE DRAWING FOR LITTLE CHILDREN.

WHEN we who are now adults were little folks at school, we were set to draw ornaments from the flat in outline with a hard pencil. First we were allowed to sketch the design in loosely and lightly, but the moment came when we had to lay all experiment aside and draw it in boldly and carefully with a hard and unswerving line; "lining in," it was called. The painful memory of it clings to us yet.

We were next initiated into the mysteries of light and shade. A plaster of Paris cast was put up before us to be copied from. The cast was often soiled so that it was with difficulty we could make out the real shadows from the seeming ones. We had often to determine the place of the high light by wetting the prominent parts. Our drawings thus were executed with difficulty, and were, as you see, partly ideal, as we attempted to carry the gradations of light and shade farther than our eyesight or the condition of the cast would properly allow. Many of the drawings, when this was pushed to an extreme, came to resemble polished metal rather than plaster of Paris.

Success in this art meant further promotion to "still life"—to color; the painting of pots and pans and vegetables. When we reached this happy point, we looked upon ourselves as full-fledged artists.

The full sum of our ambition, however, was to paint a portrait. From a potato or cabbage to a human face was hardly a step at all. Our sitter had but to dehumanize himself or herself, banish all movement, and with it expression, which is but the movement of the face, reduce himself to still life, and we knew how to deal with him. Our education never aimed at more than this. Outside of school hours we made little irregular excursions into the country to sketch from nature, but this was not recognized as part of the school work, and it never amounted to much in any case.

Nowadays the public schools would upset all this, reverse the whole process, and begin where the old system left off—with the landscape. We have not quite made up our minds about the life-class. We look askance at plaster casts, and as for drawing from the flat, that is our *bête noire*. The child must now work with the brush, and all inclination toward outline must be stamped out as vice. He must work in *mass*.

What is this "mass drawing" that is talked about so much and so vaguely? It is not merely drawing larger or in a ruder way as opposed to painstakingly close and cramped work; everybody is now agreed that the little child should be encouraged to draw in a big, free way. The phrase is meant to suggest a sketchy manner—hit or miss—and is opposed to the working-drawing style in which things must show their articulations clearly, the contours admitting no hiatus. Nor is it drawing in well-defined silhouettes of color ("poster" effects, to use a vulgar word); as the phrase is used, it implies light and shade or the representation or suggestion of the third dimension. It seems to me that the phrase "mass drawing" involves two things closely allied to each other: (1) sketchiness, a touch-and-go manner distinguished from the tracing of contours; and (2) the representation of the third dimension = modeled surface = light and shade.

I shall attempt to show that we must not expect to find these characters dominant in child drawing, and that where they do occur they are not to be unconditionally encouraged.

We hear it said today that mass precedes outline. If that means that modeling comes before drawing, that it comes more naturally to the beginner, we agree. It is a more direct process to represent form by actual form than by lines and tints and shades. It is direct copying in the one case, and in the other case translation from the terms of three dimensions into the terms of two dimensions.

Drawing is always to some extent abstract. For this reason sculpture outruns painting in the earlier stages of art history. It reaches a high development, while the painting yet remains crude. Take the art of the Egyptians for an example. Compare

their painting with their sculpture. It is crude and conventional to the last degree. Witness their habit of drawing the human eye in front view, while the other features are seen in profile. Everywhere the Egyptian artists are hampered by the greater difficulty of delineation, and turn and twist things about till they get them into a convenient position to draw. They place the human body with the head in profile and eyes in front view; with the chest in front view and arms and legs in profile; the waistband again in front view, although the limbs are seen from the side. Their drawings remain almost barbaric in their simplicity, while their sculpture in its best moments almost rivals that of Greece. What it wants in movement it makes up in monumental repose. Here there are no anomalies. The artists achieve the ends they proposed to themselves, restrained it may be, but never thwarted or diverted from their purposes by the difficulties of their medium.

So with Greece, the sculpture far outruns the painting. There are vague stories of the miracles of Apelles and Zeuxis, but these we are not inclined to take upon trust. They are probably grossly exaggerated. If Cimabue's Madonna had perished, we should have had a similar story in more recent times. The Italians enthusiastically proclaimed that Cimabue rivaled nature, but his picture seems a poor, flat, unreal thing to us today. We prize it for quite different reasons from those to which it owed its popularity with the people of that day, for its still, sad nobility of expression, which it shared no doubt with many pictures of its time.

The only things that we have to go upon for Greek painting are one or two late Greek daubs done by common house-painters on the walls of Pompeii and the vase paintings. These latter are very important art works, though they cannot take rank with the best sculpture, and are done by very accomplished and reputed artists. They cover, too, a wide period of history. It would be an interesting inquiry to make a comparison between them and contemporary sculptures.

Now we know that the sense of form among the Greeks was carried to a high degree of refinement. Here, if anywhere, one

would think, were artists who would not be satisfied with rude outlines in lieu of modeled surfaces. Their sculptures were carried into the greatest detail; every swelling muscle and rounded bone was given with sufficient, and no undue, emphasis. These sculptures are models to us today.

Now let us turn to their paintings: black, flat figures on a red ground; or brick-red flat figures on a black ground; or black or brown outlines merely on a light ground in violent contrast; no modeling whatsoever anywhere; wiry lines for all the internal markings of the figures, wiry outlines bounding all the forms.

How can we explain this anamoly? It is only to be explained by the *difficulty of representation upon a flat surface*. This is sufficient to balk the continued efforts of man for thousands of years.

Nor did any artist succeed in grappling with the third dimension in painting till late in Greek times. And on the fall of the ancient world the new acquirement was lost again for one thousand and five hundred years. The whole primitive, ancient, and mediæval world knew nothing of "mass" drawing. Outline filled in with flat bright color was the full extent of their scope.

Mass-drawing is thus seen to be a *modern art, the product of an advanced stage of artistic culture*. Even when it did come, it did not displace the outline, but lived peaceably side by side with it down through Renaissance times till our own day. Michael Angelo, preoccupied with modeled surface as no other painter has ever been, still retains the outline, and emphasizes and detaches his form by its means. The modern impressionists are, indeed, the first in history to do away entirely with the bounding line.

Edouard Manet, some forty years ago, was the first clearly to see that objects are relieved against each other as lighter or darker patches; the first clearly to distinguish his visual from his tactual percepts, and to eliminate the tactual.

This is impressionism, the expression of visual images without modification by tactual images. If Manet had been studying from the stained cast with us, he would not have cared to ask what was stain and what was shadow; if they looked alike to him they were the same.

Let me contrast Greek art and this modern picturesque art. The Greek was occupied with form. He loved the untrammeled form, preferred the nude, and treated drapery in such a way as to exhibit the figure. The horse even was divested of his trappings. Everything was arranged so that the tactual sense of the artist and of the onlooker should have the fullest exercise. The eye, the hand, could caress every shape. The modern schools do the opposite of this. Everywhere the form is broken, as in nature, with a hundred accidents. Things are at cross purposes. The form is interrupted by the drapery. The drapery is interrupted with pattern, with cross and shifting lights. Landscape (Turner) and cathedral (Joseph Pennell) are veiled with changing light and shadow and soft envelopes of air, so that here the shape appears for a moment and again it is lost. Modern impressionistic painting gives nowhere any satisfaction to the tactual sense, but everywhere constant play and pleasure to the visual. "This study of appearances and the effort to render them come late in the history of art," says Hamerton. "The complete knowledge of appearances is the sign of a very late state of civilization, implying most advanced artistic culture both in the artist and the public to whom he addresses himself."

We cannot expect the child to do what the most advanced artist could not do half a century ago—namely, distinguish his visual from his tactual perceptions. We cannot expect him to be an impressionist, and must be content to let him lag a little behind the artists of the time and begin somewhat farther back; not troubling much about light and shade, atmosphere, perspective, linear or aërial, and effects generally; gradually learning something about the shapes of things, and not worrying overmuch about their appearance. Perhaps the very tiniest little ones may begin even farther back still, with a kind of picture-writing which does not make any very serious attempt at representation at all, but is almost frankly symbolic. We must ask how far the individual student must recapitulate the art history of the race. That is a question that has never seriously been discussed, and it seems to me one that we might attempt to deal with now.

Let me essay to sketch that art history in a broad way, and it is only these broad characters that need immediately concern us.

We may roughly divide art into three periods, which we might call "early," "middle," and "advanced." In the first the art of savages and primitive folk, Mexican manuscripts, red Indian drawings, Egyptian papyrus and mummy cases, Greek vases, mediæval manuscripts, etc., the forms and colors are conventional. There is much pattern, often great decorative splendor. The technique is always outline filled in with pure, bright, flat color. Primitive art is picture-writing, story-telling. It is symbolic—that is, full of meaning, almost nothing but meaning.

When we come to the second stage, represented by Greek sculpture and Renaissance art, both painting and sculpture, we find a growing regard for construction, proportion, and modeling (= in painting light and shade). Ornament is used sparingly and is much subordinated. There is little or no color. The subject-matter is still important, though not so all-important as before.

The third stage—which we may call "modern," though there were suggestions of it in the Venetian painting of the later renaissance—is marked by broad effect (Barbizon school); by devotion to superficial aspect (Bastien Lepage); there is no outline (Manet, Monet, Sisley) and little modeling (Lepage); considerable regard for tone (Carrière, Henner), and for effects of light (Manet) and atmosphere (Roche). The subject does not matter.

Though in the past these periods have succeeded and largely obliterated each the preceding one, there need have been no necessary antagonism. Each might have come, not to destroy, but to fulfil the other. This will be the task for the painter of the future. Saving all the decorative splendor and depth of meaning of primitive art, he will add to it the scientific exactness of statement of the middle period, and to that again the grace of the lighter touch and broader handling of the moderns.

And the little folks come into this technical tradition of the past, but they must make it their own in a definite order and sequence, it seems to me.

We have seen, then, that mass-drawing is impressionistic drawing; that it has come to the schools from the studios of Paris, and that it represents a very advanced and late stage of artistic seeing.

The impressionists themselves in their youth worked in a very different way. Degas, for example, one of their leaders, painted, as, indeed, did Corot and Turner, in a very detailed and exact manner, arriving at his broad style late in life. There seems to be a natural process of development here.

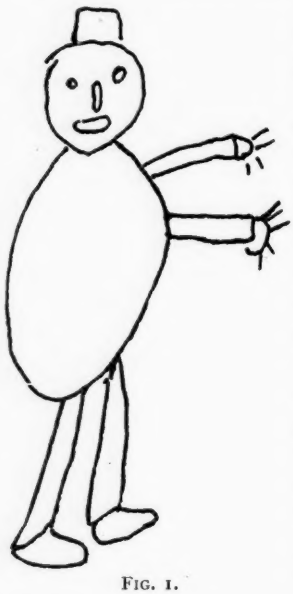

FIG. 1.

As we saw the race advancing through a long period of close constructive drawing to the rendering of the aspects of things, from the expression of knowledge of local form and color to the mastery of appearance, so we can trace the growth of the individual artist through a stage when he is making an exact inquiry into the anatomy of form and color, till he reaches the point when he can add the last grace of surface shimmer.

If we attempt to force the student to render these effects, textures, and qualities before he has got a good grasp of structure, his natural growth is arrested. He is lost in the complexities of seeming, and has no clue to the mysteries of form. His work is blotchy and vain. This is the error that has crept into the schools.

There are no outlines in nature. What is outline? It is a line drawn around the contours of things defining the limitations of the form—the boundary line of the mass. The child, when he draws his symbol of a man, does not think of the line. In drawing the almost circular body with a sweep of his hand, he is drawing a portly man, and that is his embonpoint. He

is thinking of the bulk of him. There is a recognition of the mass, though the third dimension is not grappled with.

I believe the child, after he has passed through the scribble or purely symbolic stage, comes to something like our diagram. He states a few of the facts about the human form. This grows by the addition of more facts into some semblance of the form. This process should be continued until we have the drawing of a Leonardo.

Little by little some attempt may be made to deal with the modeled surface. The nose in front view, rendered by lines, is never satisfactory. It cannot be made to project without some gross anomaly, either by putting it to the one side or the other, or up, or down. And the eyes are expressionless unless there is some suggestion of the projection of the brows, and this can only be done by darkening the space under the eyebrows. The line of the underlid, too, asserts itself too much and must be suppressed or eliminated altogether. So, instead of the arrangement shown in Fig. 2, we have that of Fig. 3, the upper lid darkened to suggest that the eye is set in, instead of on, the face, and the under lid taken away. I think I can remember my own first experiments in shading, and that the nose and the eye first made the demand upon me for a fuller method of representation than mere lines could afford.

FIG. 2.

FIG. 3.

So the power of representation grows; at first a shadow hinted at here and there, though the greater part of the drawing is in outline or in flat-tinted spaces. By and by the student sees the half-lights and nuances of shade, and his drawing grows to fuller and fuller realization; and at last he may dispense with the outline altogether.

The first great advance is made by the child when he emerges from mere scribbling to some sort of definite statement of the form as he conceives it. "The child's difficulty at this period seems to be the struggle to subordinate the motor elements to the visual elements. Only when the latter are in control of the former can the child really draw." Here everything that makes

toward scribbling must be regarded as a danger. While drawing is a severe exercise of the intellect and will, scribbling is the expression of vacuity of mind and purpose.

The rendering of tone—making the coat or hair black, for example—is best done with the brush. The flapping of the pencil backward and forward in fatuous shading is a kind of dissipation and leads back by an easy road to scribbling. We have seen drawings not a few by upper-grade children who have lapsed in this way, covering foolish drawing with a pretense of clever sketchiness and with cheap effects of tone. The teacher should help the child to clarify and define his ideas and his style, and discourage the use of subterfuges and lazy short-cuts. Of course there is a danger of quite an opposite kind to be looked out for as well. The little one may arrive at a convention that is satisfactory and definite enough as far as it goes, but does not go far enough, and may repeat this convention indefinitely, making no advance upon it. Here the teacher must enlarge the pupil's conception of things and stimulate the development of his conventions.

Some would have us believe that children begin with outlines because these are the natural outcome of the material they have to work with. The pencil is given into their hands, and they can draw lines only with a pencil. That argument would not explain the use of outlines by primitive peoples. They could more readily get colored earths and dyes than sharp points to draw with, and yet we find that they set about inventing them, and drew their outlines, and would be satisfied with nothing else. And, after all, a pencil can be used to get impressionistic effects. It can be employed to express surfaces and textures and qualities, if the artist especially cares for them, no less than it can silhouette. See the work of Charles Keene and Joseph Pennell, for instance. A still harder instrument, the etching needle, is the favorite tool of the impressionists. Invented by Rembrandt, an impressionist before his time, it has been used long and lovingly by tone artists like Whistler and Haden.

The use of outlines is not, however, confined to primitive folk and children. Artists who have acquired the technique for the

presentation of the most advanced knowledge of form often employ this method of drawing. Turner, the very fountain-head of impressionism, "whose chief virtue and skill in his finished works seemed to consist in losing it," drew in outline constantly. Ruskin, who arranged and classified the water-color drawings of Turner for the National Gallery of London, states that Turner made at least a hundred drawings in pencil outline for one that he touched in color. He goes on to say:

> Nor is it ever possible to distinguish any difference in manner between outlines intended for color, or only for notation. In every case the outline is as perfect as his time admits, and in his earlier days, if his leisure does not admit of its perfection, it is not touched with color at all. In later life, when, as he afterwards said of himself, in woeful repentence, "he wanted to draw *every* thing," both the lead outline and the color dash became slight enough, but never inattentive; nor did the lead outline ever lose its governing proportion to all subsequent work.

Further on he says:

> I have therefore given you this plate not so much for an immediate model as to show you the importance of outline even to a painter whose chief virtue and skill seemed, in his finished works, to consist in losing it. How little this was so in reality you can only know by prolonged attention, not only to his drawings, but to the natural forms they represent.

In another place he says, speaking of the same master:

> It was commonly thought that he was great only in coloring, and could not draw; whereas his eminent distinction above other artists, so far as regards execution, was in his marvelous precision of graphic touch, disciplined by practice of engraving, and by lifelong work with the hard pencil-point on white paper.

The most advanced artists use outline in the earlier stages of their work — in the planning of their pictures, I mean. Their first sketch is usually a pencil jotting. Among figure painters the practice, I may say, is universal. See the sketches of Raphael, Michael Angelo, Leonardo da Vinci, or in our own time of G. F. Watts, Burne-Jones, and Puvis de Chavannes. Why do they do so? Because this method is most economical of time and material. With a stroke of the pencil they can convey more than with many dabs of the brush. One can make some semblance of a man without lifting the tool from the paper, running around the edge of him.

And here, I think, we come upon one of the strongest reasons why children and primitive folk use outline. They want, in the intensity of their impulse, to get at their ends by the readiest way. They do not have time to begin in the center and work out carefully to the edges; they cut out the forms in the quickest way, and that is by running their pencil line around them, filling them in afterward, when there is leisure to give to less vital matters, adding the splendor of fine color.

Little children, then, should be allowed to draw outlines because —

1. They are unable to grapple with the third dimension and can get on very well without it. To insist upon it is to balk and befuddle them, and so stop their genuine expression at the fountain-head.

2. Their proper progress is toward more defined statement, and outline drawing calls for that, every touch meaning something particular, whereas tone may stand for either local color, texture, light and shade, or atmosphere, or something altogether vague and silly, and the young artist's intention is unreadable because unmeaning — "signifying nothing."

3. Outline drawing is the most direct and economical mode of drawing, and lends itself best to the hot impulse of youth and creative genius.

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SOME STEPS IN THE EVOLUTION OF SOCIAL OCCUPATIONS.

IV.

SCIENTIFIC research into the nature and value of foods is not yet sufficiently developed to enable one to make positive statements regarding the effect of specific foods upon the development of the individual even at the present time. To attempt to make such statements regarding the effects of food upon the river-drift man would be still more hazardous. Yet it is possible to determine, within certain limits, the general effect of the foods of that age and the effect of the occupations by means of which food was supplied.

The energy required to meet the constant demand for muscular activity, the loss of bodily heat through lack of clothing and shelter, the excessive burden placed upon the body in digesting the available foods of that age—all united in making a heavy drain upon the low and irregular supply of energy that man was able to secure from the consumption of available foods. As long as man depended upon vegetable foods chiefly, he probably suffered as much from the necessity of consuming enormous quantities of coarse, hard, and tough foods as he did from irregularity in food supply. This fact alone, even though it were not supported by facts derived from the study of contemporary tribes, is sufficient to convince one that the digestive system of the river-drift man was relatively larger and more powerful than that of civilized man. Yet, in spite of this, the burden placed upon man's digestive system during the age was such as to leave little surplus energy to be devoted to any activity not essential to maintaining life on a plane but little removed from that of animals. The difference between man and the animals, though slight, was of the greatest importance. Man was sufficiently like the animals to begin the work of conquering them, and sufficiently unlike them to be able to reorganize his habits with

reference to advantages that he had perceived. A powerful jaw, strong teeth, and large ridges for the attachment of muscles were more significant than a great brain capacity, as long as man was destitute of implements to crush and grind food, of fire to cook it, and of tools by means of which he could apply his energy in the most economical way. Even though man's activities were devoted almost exclusively to supplying food and escaping from enemies, so great was the variety of food that he instinctively sought, and so diversified were the habits of his enemies, that in order to survive in the struggle for existence he was obliged to acquire facility in a great variety of activities. In this way man secured a physical development that was checked only by the fact that his supply of energy was low and often irregular.

If by intellectual development is meant the development of intellectual activity as an end in itself, man of the river-drift period was deprived of it. The conditions of his life did not permit him to expend energy in ways that did not yield very immediate practical results. He had no formulated knowledge. The knowledge that he possessed was embodied in his habits, which, originating in instinctive activity, gradually came under more conscious control. That man's habits functioned chiefly with reference to the need of food and protection was an inevitable consequence of the conditions of the age. Yet the elements of his environment by means of which these needs could be supplied were so diversified that man became marvelously sensitive to a great variety of stimuli. Alert to all that concerned his welfare, it mattered little that he appeared stupid with reference to all else. The needs of the present did not permit man to project the end of action into the future. He wanted food to supply a present hunger. So completely was man occupied with the needs of the moment that there was little opportunity for reflecting upon experiences of the past or of forecasting the future. Had man been more like the animals than he was, he would probably have remained absorbed in the activities of the present. It was due as much to his failures as to his successes that he was enabled to work out a method

of escaping from the bondage of the present moment, for he felt no need of analyzing the process as long as he was successful. But when food failed, man became conscious of his own weakness. Attention was thus directed to the inadequacy of the means for the accomplishment of the end. Under the stimulus of hunger man was prompted to make use of associative memory. Perhaps the suggestion came from the memory of the way in which the tiger used his teeth or claws, the urus its horns, or the wild horse its hard hoof. Such phenomena would doubtless have escaped his attention if he had not stood in need of the lesson that they conveyed. Certainly it would never have occurred to man to take a suggestion of this kind for the mere sake of improving his industrial processes. But under the stress of hunger he becomes conscious of his own weakness and alert to seize every opportunity for supplementing his own powers. But it must not be supposed that even the most pressing necessity would be sufficient to induce man to pass directly from the use of his bodily organs to the manufacture and use of tools. A great advance was made when man first consciously recognized the inadequacy of the means to secure the end, and when he restored the balance by making use of *natural forms* as tools. The modification of natural forms, so as to secure more adequate tools, marks a much more complicated and indirect mental process. It is not surprising that only faint beginnings of this art were present during the age in which the river-drift man lived, for rapid progress is not a characteristic of the early stages in the development of a people. The rapid physical growth, the early development, and the industrial independence of each individual from a very early age tended to secure fixed habits exceedingly difficult to modify; hence the conservatism so characteristic of primitive people.

Man's attitude toward nature has always been influenced by his manner of securing food. The river-drift man assumed a hostile attitude toward plants and the lower forms of animal life. The fact that he refrained from attacking the larger animals was due to his fear of them. They were objects of terror from which he fled. Yet, in spite of this fear, he instinctively felt a kinship

with these creatures. The mingled feelings of fear and kinship found expression in a system of nature-worship which has had a profound influence upon all succeeding stages of culture.

Perhaps the most valuable moral lesson of the age was that of learning to refrain from purely instinctive action. This lesson was learned under the stress of necessity. Only by lying in wait for the smaller creatures could man secure the much-needed animal food; only by inhibiting his impulse to rush into the conflict could he avoid becoming the quarry of the larger beasts of prey.

It would be unwise to assert that man's lack of courage at this time was due to the fact that the greater part of his food was supplied from the vegetable kingdom; for it is not known positively but that vegetable foods are as valuable in producing bodily strength, physical courage, and acuteness of intellect as animal foods. But it is evident that the low state of nutrition would affect man's emotional nature in such a way as to render him exceedingly irritable. Violent outbreaks of temper so characteristic of the childhood of the individual and the race are traceable in most instances to defects in nutrition.

The occupations of the river-drift man belong to the stage of the individual search for food. They can scarcely be characterized as social.[1] Each individual was concerned in securing his own food. There was no social stratification and no division of labor. People were scattered over widely separated areas, coming together only as social instincts common to the lower forms of animal life prompted them to meet. The family at this time consisted of the mother and child, the father being but loosely attached to this primitive group. The helplessness of the child found its counterpart in the love of the mother, who amid the hardships of the times found ways of caring for her child. Until the child's digestive organs were sufficiently developed to enable him to digest the food that she could find for him, she nourished him with her own milk—the most perfect type of food yet known. Gradually she supplemented this food with the most

[1] In connection with this statement read an article by PROFESSOR W. I. THOMAS, entitled "On a Difference in the Metabolism of the Sexes," in *American Journal of Sociology*, Vol. III, pp. 59–63.

nutritious and tender forms that she could find, and paved the way to the use of tough foods by chewing them until they were reduced to a form that the child could digest. As the child grew, the mother taught him to find the choicest foods that the environment supplied. When he gave evidence that he had learned the lessons, she allowed him to depend upon himself. The dependence of the young child upon his mother tended to unite them for several years. The fact that the child early became independent of his mother prevented the continuance of this relation. The early independence of the child was not so much a matter of choice as of necessity, for as soon as the mother had another child to take care of the older one inevitably was obliged to depend upon himself. The child was thus ushered into the responsibilities of adult life at a very early age and grew old prematurely. Few people among early savage tribes live to be old. This is due not merely to the tragedies resulting from their natural environment, but to the lack of social organization, and hence of any means of providing for the care of the sick and aged.

Until man learned to use fire, conditions were such as to prevent the formation of regular habits of co-operation. For a long time after its conquest people were united, not by forces within the group so much as by a common fear and a common means of protection. So powerful a force is conservatism among savage peoples that there can be little doubt but that the river-drift people followed the habits formed during the stage of the individual search for food long after some of the conditions for co-operative action were secured. The preservation of fire, however, made an imperative demand for one form of division of labor; and since it was more convenient for the women who were burdened with young children to search for food in the vicinity of the camp, they became the guardians of the fire while the men searched for food in more distant regions. It has been suggested that the differences in nutrition resulting from this division of labor between the sexes would in the course of long ages account for many of the physical differences that are now quite marked.

With the use of fire the women and children undoubtedly labored in common a greater part of the time, enjoying the advantages that come from social conversation. Real co-operation in the same process in time of need was a gradual growth which was fostered by association and by the perception of advantages gained in occasional instances of spontaneous co-operation. The instinctive craving for flesh no doubt added its weight to the effect of social conversation and pantomimic representations by the fireside at night, thus facilitating the co-operation of all of the members of the group who were free to participate in hunting the larger animals. But the old habits were strong, and it took many long years to modify them sufficiently to secure effective co-operation in hunting the larger animals. When that was accomplished, we have passed from the age of the river-drift man to that of the early cave-man.

In attempting to make use of the materials of the past, it must be remembered that they have no real significance unless related to present interests and activities. Unless the past can be made to live in the present, it may well be forgotten. This is as true of the history of our most civilized nations as it is of the generalized accounts of the Pleistocene and prehistoric periods. This fact makes it imperative for one who would make a genuine application of the materials of those remote times to consider carefully the points of likeness and difference in the attitudes of primitive man and the child, and to suspend judgment until account is taken of the nature of the conditions which in each case give value to an act and determine the form which it shall take. Since the teacher is the one who makes the real application, it is important for her to take these points of likeness and difference into account. The principal, the supervisor, the author of the text may render a more efficient service by such a knowledge than would be possible without it; but the teacher, by virtue of the nature of her work, must, consciously or unconsciously, incorporate these truths in her daily work.

Before suggesting ways of making use of the materials presented, it may be well to consider more specifically some of the

factors that were referred to in a general way in the discussion regarding the principles of selection. By so doing it is hoped that the teacher will be better able to adapt the problems that will be suggested later to the needs of the situation in which she is placed, or to make new applications of the materials presented.

The mental processes of the child and primitive man are similar in several respects. In both they are characterized by a very direct mode of response to stimuli, little or no separation between means and ends, a minimum of inhibited action, an almost complete absorption in the present, little reflection upon the past or forecasting of the future, ready shifting of attention, inability to maintain attention unless supported by a personal interest in the object of the activity or by the power of rhythm, and a distaste for intellectual activity.

Racial development during the river-drift period finds its counterpart, in several respects, in the development of the child during later infancy. The pre-tool period is a term that very well characterizes this stage of development. With both the child and the race it is a period largely occupied with acquiring the mastery of the larger physical co-ordinations. It is a period of practical activity from which separate interests have not yet emerged. Processes are still simple and direct. Tools are the organs of the body or these supplemented by such forms as can be found on the spot. It is a period in which use is made of the materials and tools that the environment affords, but only the faintest beginnings are made in changing their shape.

The attitudes of the child of seven are more nearly represented by the activities of the race when it had made some progress in making and using tools. With the power to adapt means to an end, processes are more indirect. Interest is manifested in the process itself, and in ends projected into the immediate future. This change in mental attitude in the child is a sign that he is able to make a conscious use of the experiences of others. It marks the dawn of the historic sense.

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GEOGRAPHY AND MENTAL IMAGES—AN EXPERIMENTAL STUDY.

No one thinks nowadays of teaching geography by the old catechetical method in use fifteen years ago. What was formerly a valley of dry bones through which the child wandered drearily, picking up a dead definition here and there, has blossomed into a broad and beautiful field which teems with things full of interest to the learner. Instead of beginning with the abstract definitions belonging to logic, we now begin with the concretest thing possible to the child—his already accumulated experience on the one side, and on the other its counterpart, the environment out of which his experience has grown. No longer seeking the remotest possible point from the child for a beginning, we now find in his own immediate interests and occupations the best vantage ground. And, what is not less significant, we have come to see in the social interests and occupations the beginning of *all* education, and hence to realize that only as geography has a social basis does it find its true point of departure.

Geography is primarily not a thing to be learned, but something to be experienced, for the first subject-matter of geography is the immediate environment of the child. It has been said to be the study *par excellence* for training the imagination. But this is true only when, and in so far as, it first trains perception. Nothing ever enters the imagination all the elements of which have not been present in perception. Nor is a memory image ever clearer and more perfect than the original perception. It is fortunate if it even approximates the perception in vividness and lifelikeness. Even granting clear perceptions and vivid memory images, the imagination may still be faulty through a failure to utilize the images already at hand in the construction of new ones. The fact that we have shown the child a two-by-four mud puddle with an isthmus doing duty in the middle of it is not a safe warrant that he has a clear notion of an isth-

mus; it is not a safe warrant even when our device is supplemented by calling attention to the fact of the striking analogy to be found in the case of the human body, where the neck connects the head and the trunk! Neither can we assume, after the child has molded a relief map showing the plains, hills, and mountains, or even after he has seen hills of some two hundred to three hundred feet — which is about the limit in the Mississippi valley — that he has more than the faintest and most inadequate idea of a mountain. Likewise, the black streaks on the map which are meant to represent rivers may still be but black streaks and nothing more to the boy, although he has fished, and waded, and swum in the real river. He may fail to make use of his past experiences in the formation of new images.

No doubt the child's first images are more or less crude and imperfect from the very necessity of the case, resting as they do on a very limited experience. He cannot be expected to know a mountain as an Alpine guide knows it, or to understand a coast line as a navigator does, until he has had at least a measure of their experience. This is a stage of mental development through which all must pass, but the question may be raised whether there are not too many cases of arrested development at this stage.

In order to prevent or correct wrong images, or to induce the formation of a greater number of richer and more complete ones, the first step necessary is to discover from the child the images he already has on hand, or, as President Hall would say, to find out the "contents of his mind." A conviction of this truth led the writer to undertake a study of the children in elementary schools as to the nature of their mental images in connection with work on certain topics in geography. The character of the test to be employed was determined by suggestions from Professor John Dewey, of the University of Chicago.

Fifth, sixth, and seventh grades in the public schools of Chicago and Denver were selected for the test. Replies were received from 386 children of both sexes in Chicago, and from 52 in Denver, making a total of 438. The teachers of these grades were requested to give the following questions as an exercise in Eng-

lish, the children not knowing that it was other than a class exercise:

1. Is an island like a hill? Tell why you think it is or is not.

2. Which is higher, a mountain or a tall chimney? How much? (The teacher to mention some tall chimney known to the school).

3. Is an isthmus like a strait? Tell why you think it is or is not.

4. If all the water in lake Michigan should dry up, what would you see where the lake is now?

In response to the first question, 62 per cent. answered negatively, 30 per cent. affirmatively, and 8 per cent. were doubtful. Seventeen per cent. expressed the idea of the island's extending below the surface of the water, 16 per cent. gave a formal definition of "island," and 14 per cent. of "hill." Thirty-one per cent. said that the difference is that the island has water around it, while the hill has not; 19 per cent. thought that the difference lies in the fact that the hill is higher; and 11 per cent. thought that the difference is in the greater slope of the hill. The best answers were given by the seventh grade, and the second best by the fifth grade. As an illustration, the idea of the part of the island below the surface of the water was expressed by 23 per cent. of the seventh grade, 16 per cent. of the fifth grade, and 12 per cent. of the sixth grade; resorting to formal definition of "island," seventh grade, 10 per cent.; fifth grade, 16 per cent.; and sixth grade, 33 per cent.

But few indicated a complete misconception of a hill or an island, but many showed that their image of one or both was very incomplete and inadequate. The following are taken from the answers:

A hill is a pile of earth covered with brush and trees.

A hill is on the ground, but an island is not.

An island is not like a hill, because it is not round on top.

An island is round, and the four sides slant.

An island is not hilly, because it is a forest.

An island is like a hill, because it is higher in the center.

An island is like a hill, because it is fastened to the water, and extends up above the water.

An island is round like a ball.

An island is not like a hill, because it is a little swamp guarded by rocks.

An island is a little bit of dirt piled up.

An island has no grass on it.

An island is like a hill, because the top comes first.

An island is like a hill, because it rests on the water like a hill rests on the ground.

An island is land pushed up by the water.

In answering the second question, there were 9 per cent. who estimated the chimney as higher than the mountain, and 9 per per cent. who were doubtful, while slightly more than 40 per cent. gave answers evidencing an inadequate conception of their relative heights. Of course, judging on the last point is more or less an arbitrary matter, but the child was given the benefit of the doubt where the language left any question. A good many said that it depends on the size of the mountain. All these were classed as not having an adequate conception of the difference. It is recognized also that some of the difficulty in expressing the difference in the heights may be from the fact that the child has not a proper conception of number, instead of being altogether lacking in his images of chimneys and mountains; for even the Colorado children, who are constantly within sight of mountains, will say that a mountain is from fifty to two hundred feet higher than a chimney. But after making all due allowance for this fact, it would still seem safe to say that very few, if any, children who have never seen a mountain have any real notion of one. Many said that the mountain is higher by two, three, fifteen, or one hundred feet. One says that the mountain is higher, "for it is raised some every year." Others say that if the mountain went straight up like the chimney, it would be the higher, but since it slopes, the chimney is the higher. Here again the fifth and the seventh grades did better than the sixth.

The replies to the third question showed 51 per cent. who thought that an isthmus is not like a strait, and 25 per cent. who thought that it is, and 24 per cent. who were doubtful. Of those who said that they are not alike, 31 per cent. volunteered that the difference is that the one is land and the other water. An average of 27 per cent. showed a misconception of one or both, the greatest misconception appearing again in the sixth grade, where it was 32 per cent. The large number of defini-

tions attempted here is also suggestive, an average of 42 per cent. for all the grades—being 39 per cent. in the fifth, 50 per cent. in the sixth, and 35 per cent. in the seventh grade. That many were relying on formal definition instead of their images of the things themselves is shown by their getting the definitions of "isthmus" and "strait" confused, and some even giving the definition of "cape" instead of "isthmus."

In response to the fourth question, 35 per cent. said that if the water in the lake should dry up, they would see such things as fish, dead bodies, lost ships, shells, plants, rubbish, etc., etc. Forty-nine per cent. mentioned the broad expanse of the lake bed which would be left exposed, and 32 the deep hollow or depression which would be left. Here again the sixth grade fell behind both the others in the fulness of their answers.

It is manifestly impossible in this question to measure the amount of misconception where any occurs. The following extracts are suggestive, however, some of defective images, and some of very vivid ones:

It would be shallow.

Cannot get this one.

Hole so deep would be left that you could not get out.

One could then see Michigan.

There would be left the shape of a great pan.

Hills would be where the islands are now.

The sand would smell very funny.

We would see millions of fish gasping. Would see a large hole with sand and rocks at the bottom.

We would see in the distance a dark body, which, on approaching, would turn out to be a wreck in which would be found dead bodies.

We would see broken pieces of ships, provisions decayed, fishes of all kinds lying around, a great many men and women and children, hills and valleys, long and narrow basins looking like little rivers, basins looking like lakes, and what looks like large plains.

It would look like a bath tub.

We could see all the banks and the piers caved in. Would see a field with cattle grazing, or a mining town.

There would be a sandy, hot, dry place.

You would see ——, but it is not likely to dry up.

You would see the boats way down below, and the tunnels and cribs that make and pump the water to the big water stations.

There would be great piles of rocks left by the glaciers, and cliffs hundreds of feet high.

A basin as deep as the tallest chimney in the world, and fishes flattering around.

Some of these answers were repeated in different ways many times, and an especially large number spoke of the desert which would be left.

While the number of papers examined was not as large as could be desired, yet it seems safe to draw a few conclusions, especially on the points where the evidence seems to agree quite completely.

1. *Too much is taken for granted by the teacher in the matter of children's images.* More attention should be given to developing a method of teaching which will lead the child constantly to clarify and enrich his images by reconstructing his past experiences in the light of his present. He should utilize the images he already has in the formation of new and more perfect ones.

2. *The individual differences of children in the matter of their mental images should be taken more into account in teaching.* The difference of mental content between the rich and varied stock of images on the part of one child and the limited and meager supply of another makes a fundamental difference, not only in the subject-matter suitable for them, but in the method of its presentation as well.

3. *Perfect images cannot be built on imperfect perceptions.* The child who has never perceived that an island really extends below the surface of the water will hardly have a clear image of that part which is out of sight. Nor is it enough to have the clear perception; there must be clear and frequent recalls of the object by means of the memory image, and the image must also be applied in some definite way in the acquisition of new knowledge; else it becomes so much lumber in the mind.

4. *Children at this age are slow in generalizing the particular illustrations which are presented to them.* A number defined "hill" as a pile of dirt with trees around it, or with brush over it. These were the ones who had had their experience of hills from the molding in the schoolroom or from the little artificial hills

n the city parks. They were not able to construct a real, big hill from so small a model. Many gave the difference between a hill and an island as being in the fact that an island is level or flat and a hill not level or flat. The islands of their experience had probably all been flat, and they had never pictured one of any other kind.

5. *The use of formal definitions by the child seems to go along with faulty imaging, and teaching him formal definitions of objects before he has clear images of those objects leads him to faulty imaging.* When he fails to get, or does not choose to get, an image of the object, he falls back on his verbal image of the definition to take its place, even although the definition does not have the shadow of a meaning to him. In proof of this, by far the largest number of definitions in these papers were given in the case of "isthmus" and "strait," where there had been least opportunity for perceiving the real objects, and where the misconceptions were manifestly the most numerous. Forty-two per cent. attempted book definitions, and 27 per cent. evinced a complete misconception of either isthmus or strait, or both, and besides this it is probable that many of those who gave correct definitions had no real notion of the objects they were defining. On the other hand, but 16 per cent. gave definitions of island, and 9 per cent. of hill, and here it could not be determined that there were any complete misconceptions of either. Also, the oldest pupils, those of the seventh grades, gave the fewest definitions, and their papers showed them possessed of the best images, as would be expected. The sixth grades gave the largest per cent. of definitions, which may be accounted for by the fact that they had recently come into the use of the text-book, while most of the fifth grades were still having their instruction orally, and the seventh grades were becoming a little more independent in their thinking.

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THE ENRICHMENT OF THE TEACHER'S IDEAL.

EVERY teacher is controlled in some measure by an ideal. It may be a low ideal, wanting wholly in professional elements, a mere *quid pro quo* consciousness, so much service for so much pay; but even here the ideal of financial return enters as a spur to effort. There are personal ideals also, as that of being popular with one's pupils, which, while of a higher order than that which is purely commercial, is professionally quite as empty. Every teacher, we may say, then, should be controlled by a conscious professional ideal. The need becomes more and more apparent as advance is made beyond the elementary stages of school work. Doubtless a little knowledge, plus innate sympathy with childish moods and capacities, and a certain healthful poise of mind and body, will suffice to make one an excellent teacher of young children. It is much easier at this stage to direct the mind and to measure progress, for there is at once more uniformity and more simplicity in the mental processes of children from five to twelve years of age than is the case with those who have entered into the stage of reflective consciousness, with its accompanying impulses to reaction against external suggestions. It is just here, at the threshold of what we technically term "secondary education," or in the upper class of the graded school and the lower class of the high school, that we find the chief defects in our excellent school systems. These defects often seem to be due to peculiarities in local school organization; for example, in some cities the teacher of the highest grade school is also a general supervisor over the group of schools in the same buildings. Where this is the case the class that she is supposed to instruct suffers from the divided interest of the teacher at the very time when it is most in need of concentrated and discriminating attention. Moreover, it frequently happens that the teacher has been promoted to this position because of her aggressive force, which may be actually fatal to her work as an instructor and guide at this critical

period of the pupil's life. Transferred from this upper grade to the high school, the pupils in the case considered pass from the teacher whose detachment from their immediate needs has weakened their mental force and aspirations to teachers who, whatever be their scholastic attainments, have too often come to their work without even the amount of professional training required of grade teachers.

While the conditions described may not be general, they are not unusual, and they illustrate in a striking manner the absence of an ideal or professional standard applicable to this particular stage of education. They show, further, that it is not so much a defect in individual teachers as a condition affecting the whole system of education.

It is generally held that the unity of educational work arises from its relation to character and conduct. It is this in particular which distinguishes education from mere instruction or specialized training. Old education, to employ common though misleading terms, was distinguished from new by the prevailing influence of this relation. It was carried in the constant injunction *ought*, which expressed supreme regard for duty as a voluntary performance, and in the stress placed upon the classics and upon general history and literature, studies which inspire reverence for the past and fill the mind with the deepest reflections of the race as to the significance of life. Authority and duty, let us grant, were words to conjure with, but they held individuals, both teachers and pupils, to high endeavor and bound all together with the sense of an abiding relation to the eternities. This unifying force has lost its old concrete form. The loss is not peculiar to the school; it is felt also in the church and in the community at large; but the church has atmosphere and sentiments, and the community laws and penalties, to prevent the lapse of the social and moral consciousness. How to preserve this consciousness in the school is a question whose importance is everywhere recognized. In the lower grades the loss of old ideals has been replaced, measurably at least, by the infusion of Froebelian ideas, and in the upper grades of the high school is felt the influence of actual life looming large

before the ardent youth; but neither of these influences penetrates to the intermediate stage of the school which for the vast majority of pupils is the most important of all. The want which, if not confined to this stage, is here most apparent, is really the enrichment of the professional ideal. This is true, not alone with respect to teachers, but with respect to all who are concerned in the work and whose common ideal is realized in the teachers elected. "The activity and the accomplishments of pupils," says Dr. Draper, "spring from inspiration. If the teacher would be of real service to pupils, he must inspire them. If he would enrich their lives, he must have a life of his own with riches in it."[1] In other words, inspiration implies superior teachers, and this means, as Dr. Eliot has said with great emphasis, "additional expenditure for better teachers, who not only know well the subjects they are to teach, but also know the best methods of teaching the subjects."

This is an equipment not to be gained from primary schools with an added course of method training. It comes from profound study and reflection by which the mind is brought to full consciousness of itself as a great organizing and creative force whose impulses all make for inspiration. But to secure and retain such teachers it is not only necessary to pay higher wages, but to pay greater respect to the teaching function. Experience has conclusively shown that supervision by trained specialists practically familiar with school work is essential in the conduct of a system of schools, but excess of supervision is a curse in many places. As Mrs. Young very truly observes,[2] "it has created the feeling that office work and making out examination questions are more honorable than the active work of teaching. If teachers are to have a due moral influence on their pupils, their office should be held in the highest honor."

While thus admitting the need of strengthening our public education at particular points, we must not forget that the very movement of thought which has loosened some of the old moorings has given us far deeper insight into the nature of mind

[1] "The Element of Inspiration in the Schools," Report of the University of the State of New York, 1902, p. 363.

[2] *Isolation in the School*, p. 28.

itself and into its sympathetic relations to the nervous system. Education is recognized today as a distinct subject in a course of liberal education and as a specialized profession, not alone because all history and literature furnish material for its uses, but because of a body of scientific truth and philosophic principles which pertain essentially to its processes.

Like the progress of education itself, the progress of human thought is ever from the simple to the complex, and the teacher must keep pace with this movement. A new doctrine becomes a mere gloss for novelty until it is exhaustively analyzed. The doctrine of interest, for example, taken in its superficial sense, leads only to wasteful experiments. Interest, in the sense maintained by Dr. Dewey, "is always the sign of some power below; the important thing is to discover this power. To humor the interest is to fail to penetrate below the surface, and its sure result is to substitute caprice and whim for genuine interest."[2]

The test of the interest as a motive in teaching is found in its conformities to the highest ideal of method. This ideal involves, to quote from Dr. Harris, "first, its capacity to secure the development of rationality or of the true adjustment of the individual to the social whole; and, secondly, its capacity to strengthen the individuality of the pupil and avoid the danger of obliterating the personality of the child by securing blind obedience in place of intelligent co-operation, and by mechanical memorizing in place of rational insight."[2] Not only the doctrine of interest, but every other doctrine which is assumed as a basis of educational method, must be tried by this double standard.

Because every wind of modern doctrine is borne into the school-room, there should also be found teachers fortified by knowledge and by intellectual acumen to discriminate between the sound and the unsound and mellowed all through by the gracious wisdom of the humanities. We need more teachers of this sort in the grade schools and in the high schools, at least in their lower classes, more teachers whose crass knowledge has been transformed by professional training.

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[1] *Educational Creeds*, p. 17. [2] *Ibid.*, p. 43.

ACADEMIC AND PROFESSIONAL TRAINING OF TEACHERS.

I.

THE conflict of traditions and novelties, the confusion of anomalous elements, personal, metaphysical, and institutional, gathering about the theory and practice of training persons to become teachers, constitute one of the most interesting problems in the present educational situation. To call attention only to the more obvious and commonplace aspects of the problem, there is a group of institutions characterized by the term "academic"—the college, university, and graduate school—the aim of which is primarily cultural and scientific, except when it is professional in the sense that refers to the more clearly recognized or "learned" professions of law, medicine, etc. From this group of institutions teachers for the secondary schools and for higher academic and professional schools of all kinds, including training schools for teachers, emerge or emanate either as a sort of by-product inherent in the rawness of the original material, or else as prepared for careers as teachers through participating in highly specialized scientific investigations, which may be as far removed from the science of education as the "semasiological changes in the pronoun *ipse*" are removed from the changes that are going on in the particular *ipse* of the youth who is to fall under the tutelage of the academically trained instructor. Then there is another group of institutions, comprising the normal or professional training schools for teachers, which is for the most part entirely distinct from the academic group, and which aims to equip an entirely different corps of prospective teachers, for a sharply defined and very large section of the school system, the grammar and primary grades. In this group of institutions the emphasis falls, not on independent and disinterested scientific investigation, but (1) on the storing up of predigested facts to be fed out a little

later to the growing minds of children; (2) on instruction in special methods and practical devices, presented, it is quite possible, deductively and authoritatively by experienced teachers, and accepted or shed, as the case may be, with too little independent inquiry and reflection on the part of the students; and (3) on training through "practice work" in the technique of teaching and schoolroom management. Over the whole is sometimes decently draped, sometimes inspiringly floated, a philosophy of education.

It is difficult to give a brief and general account of the normal- or training-school situation that shall be appreciative of the progressive factors in the situation, often peculiar to some locality or institution, and at the same time aware of the narrowing, wooden, treadmill round of learning to teach, learning to teach, which, like the "circular reaction" described by a contemporary psychologist, seems calculated to succeed in perpetuating a certain fixed condition of things, long after the forces of civilization have created a new landscape and moved on to a broader field of action. But I imagine few, if any, readers would patiently accompany further attempts to describe the nature of the separation between the academic and the professional training of teachers. The separation is so obvious that it is little short of commonplace. We are so used to the separation that we overlook, or complacently take for granted, its striking inconsistencies, such as are apparent, if one is willing to see them, when the educational situation is practically conceived of as cut in two in the middle, one section being manned by teachers who started out with the minimum of training in education, the other by those who have had the minimum of education in the course of their training. And why not? Is it not perfectly obvious, some would say, that a grade teacher should have had a normal-school training, a high-school teacher a college education, and a college teacher graduate study? The notion of a hierarchy, of a graded series of steps arranged in the form of a pyramid, seems always to have exerted a strong fascination over certain types of mind. Perhaps it stimulates a sense of emotional exaltation, of unques-

tioning peace and security. This must be true of an educational hierarchy, no doubt, as well as of other kinds, architectural, ecclesiastical, military, political, and metaphysical, that might be mentioned.

I do not wish to imply that the obvious contradictions in the existing methods of training teachers have not been frequently pointed out and commented upon. It is partly because of a growing consciousness of the anomalous elements in the situation that we come upon another source of confusion, namely, the disposition to meet the difficulty by simply combining the two forms of training. A teacher, no matter where he is to teach, must have had both academic and professional training. A teacher must have had the sum of certain courses in subject-matter, plus certain courses in method and technique, plus the drapery or flag of a philosophy of education. On the face of it, a perfectly practical and common-sense solution this! Match the subjects to be taught with subjects in the training course; add a judicious supply of methods and technique; and shake well—either the mixture, the drapery, or the flag, as the case may be. It may seem captious to inquire into this form of solution. It is so simple, so ingenuous, so comprehensive. But it involves one or two implications or assumptions, I believe, that will bear looking into.

First, there is the implication that during the time a student is engaged in learning a subject given as an academic course his mind is so much taken up with the subject itself that no thought of how to teach the same can enter in. Accordingly, what a course in the pedagogic method of a given subject-matter should do is to cause the student who has been over the ground merely as a learner to reflect upon the steps he took as a learner, and thus develop the proper methods of presenting or teaching the subject. In this way every academic course would be matched by a pedagogic course in the same subject. This certainly appears to be an improvement over the pedagogic course that simply imposed itself upon the student and the subject-matter from the outside; and yet there are reasons for believing that the improvement is more fancied than real.

Is it possible, it should be asked, for a student who is old enough to begin a teacher's training course to recall the earlier mental stages he passed through in learning any of the various subject-matters? How he felt and thought and what he did while he was mastering the elements of arithmetic, say, or of geography, or even of the subjects pursued in the academic curriculum — is it likely that he can recollect all this with sufficient accuracy and completeness to be of material service in laying out methods of teaching these subjects? But supposing that a student were able to do this, of what avail would such recollections be in arriving at methods of teaching that were desirable and proper? It is conceivable rather that the more clearly he remembered just how *he* learned a given subject, the more likely he would be to work out a method correspondingly narrow and rigid, a copy or imitation of his own method of learning or of being taught, another case of the "circular reaction." We are somewhat familiar with exhortations to teach spelling, for example, or arithmetic, in the good old way we used to learn it.

Again, one who is led to recollect the earlier stages of his experience in learning never gets himself completely into the past, no matter how vivid the recollection. He sees the past experience always through the spectacles of present attainment. A good deal of sentimental and patronizing talk about child-life is due to this. In the more artistic and truthful expressions of reminiscences of childhood, as, for example, in Stevenson's *Child's Garden of Verses*, there is a peculiar irony which constitutes part of the literary effect. The self-deception has become conscious. But the more unconscious one is of viewing these earlier experiences through the medium of present attainment, the more likely is one to distort and misrepresent them, to be out of touch with the realities and genuine attitudes of children and of those who are learning. It is only when the index of the refracting medium is critically estimated that the adult can hope to approximate fairly accurate judgments, and these must, in the nature of the case, span wide lacunæ in the realm of recollection.

My point is that the learning of a subject, especially in the usual academic fashion as so much ground to be covered, does

not carry with it an implicit method of teaching worthy of the name, ready to be dissected out when the psychological moment arrives. It is, of course, desirable, even imperative, for a prospective teacher to reflect upon his methods of study and learning; but a method of teaching based upon such reflection is liable to be either vague and fragmentary or narrow and rigid, and in any case self-deceptive.

Of course, someone might say, at this point, that no teacher of special methods attempts to do what I have been criticising; that he offers instruction in better methods than those the student himself has followed; that what the student recollects concerning his past experiences in learning serves simply as a point of departure for the true development of methods. My reply would be that academic courses in subject-matter do not usually in themselves furnish the student with a basis for estimating intelligently the value of methods to be developed later in this fashion. Common-sense can, of course, in many instances be trusted to furnish a rough-and-ready basis of criticism; but even this rare virtue is not always proof against the unreflective acceptance of dogmatic and merely personal or empiric statements of special methods, or against the uncritical rejection of methods that do rest on a sound basis.

To sum up the point. Academic courses, such as would most likely be inserted in a combination training course, particularly those academic courses which throw stress on the mastery of subject-matter, do not implicitly carry with them desirable methods of teaching, ready to be dissected out and reapplied. Nor, on the other hand, does the content or subject-matter of such courses provide the student with a basis for estimating and criticising intelligently and independently the value of special methods presented in addition, however superior such methods may be. In fact, the better and more progressive the special methods — and I believe the experience of a considerable number of instructors in special methods would bear me out in this — the more necessary does the instructor find it to teach subject-matter in addition to method, even to students who are well prepared from the academic point of view.

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I should like, however, to submit one positive statement regarding the bearing of academic work on the problem of method. There is no need of discussing the point that without sufficient grounding in scholarship, which may be derived through academic work, any form of method would be barren and scholastic; or the point that the more or less perfunctory following of academic courses would be equally barren and scholastic. The positive statement I should like to make is that the contribution of academic work to the method of teaching is precisely the one that has been utilized already in the training of teachers by advanced courses in the colleges and especially in the graduate schools; namely, the spirit of independent inquiry and investigation. There may have been an early and rather too vigorous crop of pedagogical cant in regard to "original research," produced by a precipitate anxiety for a showing of external and tangible results. But the widespread recognition of the educational value in the training of teachers of pursuing some line of special inquiry, of raising, defining, and attacking new problems, and of experimental work of all kinds and in all departments, is not only one of the most significant developments in what we call the "higher education," but is a direct contribution, if we would only receive it, to all educational method. I do not mean, of course, that it would be desirable to organize seminars in high schools, or to encourage every pupil in the grades to busy himself with some special problem and present a "thesis" at the close of the course. This would be imitating pieces of external machinery intended to be used for particular purposes, and not to be generalized in any such wholesale fashion. The contribution I have mentioned is more direct and practical, as well as more a matter of spirit. The point is that a student, even an advanced student, who is curious about some new fact, trying some experiment, or puzzling over some new problem, whose mind is playing about some line of inquiry, now baffled and confused, now plunging ahead with sudden freedom, is probably as near the attitude and experience of a learning child as he is ever likely to get; much nearer is he than any recollection could bring him, and much more likely in and

through the growth of his own mind to be in sympathy with the growth of another's, and thus in a position to stimulate and direct that growth. I am not anxious to defend the proposition that every advanced scientific investigator is *per se* a good teacher. I assume that a person has made up his mind to be a teacher. Granted this, and it will follow, I am convinced, that in proportion as he becomes a learner, a genuine inquirer, will he have a basis on which to found a sound method of teaching. The two must go together. Close the opportunity of electing more advanced academic work, with its stimulus and guidance in raising problems and in opening up new lines of inquiry and investigation; require the prospective teacher to feed upon prescribed areas of subject-matter for two years or more, fenced in and sheltered by special methods of presenting and developing the same—and you are in danger of starving the growth and movement of his mind, which is the only genuine basis of method, into a flabby tissue of facts, ill concealing a skeleton of rules and formulæ.

The conclusion to this point, or at least *a* conclusion, would be that that training school is best equipped on the side of method, to say nothing of scholarship, which does not rest alone on prescribed courses in subject-matter and special methods, but which provides in the sciences and in the arts ample opportunities of electing advanced academic work, in the direction of the interest and previous attainments of the student, *even when the subject-matter of such courses does not bear directly upon the subjects to be taught later.*

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NOTES ON NATURE STUDY

WILBUR S. JACKMAN.

I. THE MOTIVE.

IT is the persistent aim to keep the pupils in constant touch with the many and apparently diverse aspects of nature as they are gradually and successively unfolded by the seasons. If the children are afforded the proper opportunity, and have a reasonable support through the encouragement of the teacher and parents, such observations will easily and naturally go forward.

The ancient traditions which gave form to the methods of the class-room and recitation, and which in large measure now control them, still furnish great hindrances to the correct treatment of work of this character in the study of nature. The idea that the pupils can be kept together only when doing the same work, thus ignoring variety of interests, is responsible for a good deal of difficulty. It is only in the most general way that any attempt should be made to keep the children together in any of their studies. The different modes of expression are still usually taught as ends in themselves, and the pupils fail to get their full benefit as actual aids in their real thinking. But the tremendous overestimate that is almost everywhere placed upon the relative value of the so-called "humanities" in the development of true character is the greatest obstacle of all. This will be the last to be removed, for it has its source in the deep-rooted prejudice against that frank and fearless study and interpretation of nature that modern science enjoins. It is a fact, too striking to be simply a coincidence, that as man gives more and more time and attention to the intelligent study of nature the humanities themselves become more and more humane. It is only as this is duly appreciated that it is possible to have nature presented to the children from the point of view of character-building. Teachers are just beginning to feel that nature study is a fine thing merely an a means to develop in their children alert and

inquiring minds; that it is worth while to cater to the children's tastes and desires to the extent of allowing some incidental work in the subject; that the practical and utilitarian demands of present life are a sufficient excuse for devoting some time to it; and so, for these reasons, from these points of view, they themselves study nature a little, and in an irresponsible sort of a way they try to teach it. But it will be only when teachers find out—as find out they must—that the study of nature is just as fundamentally necessary and as efficacious in the development of genuine morality as it is in the development of keen eyesight and hearing—it is only then that they will refuse to teach school without it as they now would refuse to teach leaving the so-called humanities out.

It is a common thing for people to scold at science on account of its manifest indifference toward the feelings of men. Because of this it has never yet been admitted to the sacred circle of the humanities. Hence the conclusion, also, that it can have nothing to do with morality, since that term expresses a relation between man and man—not between man and trees or between some trees and other trees. It is true that science steadfastly refuses to take part in the petty quarrels of humanity for the purpose of arbitrating or otherwise settling differences that rest upon dogmas of any kind. But the participants in this strife in time will see that their only hope for harmony lies in an appeal to nature; that it is only as they really find out for themselves nature's own way of doing things that they can safely determine what their moral relations toward each other actually are.

It is inconceivable that there can be a code of ethics among the trees or the brutes. With them, the race is to the swift and the battle to the strong. To imitate them would be as though we set up human thieves and cutthroats for our models. But true moral conduct is not a matter of imitation; its springs are found rather in the apprehension of those mutual relations which form an established order in nature. The theory of evolution has culminated in the greatest discovery of all time, that the spiritual relations existing among men represent as truly that established

order of nature as do the physical relations existing among trees. The leaf stretches out to the sunshine and the strong arm reaches out to the weak for precisely the same reason—nature ordains it for both as a fundamental and absolute condition of life. The behavior of both is in strict accordance with an established order of nature so rigid and inflexible that, for want of a clearer way of expressing it, we say they do it in obedience to a natural law. To disobey this is to incur the penalty in the one case of physical, and in the other of spiritual, death. In the early and primitive code of morals, this law appears to be an arbitrary fiat imposed from without. It therefore seems to be possible to successfully resist it, or by sacrifice to placate it, or by entreaty to evade it. In the new code now slowly forming in the light of the facts of evolution it appears to be merely the description of the inner constitution of things without which they cannot even be imagined to exist. Hence the abysmal chasm that separates the old morality from the new.

Here, then, is the central and final thought that must be uppermost in the mind of the student of nature and his teacher: I wish to know this tree for one reason—and only one—that I may live justly and walk uprightly. There is no other reason, in the last analysis, that is worth considering. I must know its wood that I may build shelter, and its fruit that I may have food, it is true. But these are secondary. If nature did nothing but teach us how to protect our bodies, then its study would forever keep us on the plane of the wild fox and the sheep, which grow hair and wool. If nature revealed to us nothing more than the world as a storehouse of food, then its study would doom us to consort eternally with the birds. If nature study is not a means—*the* means— to righteousness, directly, then the less of it we have in the schools the better, for its knowledge will be as dried grass in a breath of flame.

II. NATURE STUDY THROUGH COMMITTEES.

In organizing the work of an entire grade so that the various interests and abilities of the pupils may be considered, it is useful to divide the room into about five committees. By this plan

it is possible for each pupil to have a fair range of choice as to the domain of his observations, and the entire field may be fairly well covered by the grade as a whole. If a few minutes each day are set apart for the report of a committee, the subject is kept constantly before the children, different aspects of nature are being presented, and yet no one pupil is being unduly pressed for results. With practically a week in which to prepare his report, he may proceed with the deliberation that is necessary to good work and careful observation. The following groups of topics are suggested as indications as to what the work of the committees may include.

1. *The birds.*—Time of arrival; food; nesting habits. Bird-boxes may be made in various regular or extemporized forms.

2. *Earthworms.*—Date; nature of soil where found; habits; food; amount of earth in castings per square foot; etc.

3. *Insects.*—Earliest forms; winter history; habits; enemies; harmless or destructive; relations to plants.

4. *Plants.*—(*a*) Trees: order of opening of the buds; devices for protecting the young leaves from cold and wet. (*b*) Plants that spring from roots or underground stems that survive the winter; order of appearance; of blooming; of ripening seeds. (*c*) Seedlings; earliest to appear; favoring location and conditions; flowering and fruiting.

5. *Pond life.*—Earliest signs of life. Frogs, snails, snakes, water beetles, dragon-flies, algæ, lilies, rushes, etc.

6. *Climatic conditions.*—Temperature of air; of the soil; moisture in the soil; rainfall; sunshine; clouds and wind. These observations should form a continuous record in graphic form by means of curves as suggested in previous numbers of this magazine.

7. *Painting.*—The pupils of each committee should paint a landscape once a week to accompany their reports. A daily and continuous history of the season will thus be written in color. By means of paintings and drawings the details of plants and animals studied may be shown. Other forms of expression and mathematics will be needed, if the observations are to have much of permanent value.

Much of the work suggested for these committees will be done in connection with the preparation and care of the garden, which will be managed in general on the plan that was followed last year.

In this connection it is hoped that the school and the home may unite to enlist the interests and the services of the children

in an attempt to beautify their home surroundings. With this in view the following circular letter, which explains itself, is being addressed to the patrons and friends of the school. It is proposed to see that each child who desires to do work of this sort is provided with all the necessary help. A traveler in approaching a school, if it is a good one, should be able to learn first of its presence through its influence upon the homes of the district. In no easier or more beautiful way can this influence be shown than through the cultivation of flowers.

III. HOME GARDENS.

To the Parents of the University Elementary School:

It is intended this spring to encourage the children of the vicinity to plant and care for a small plot of ground, where practicable within their own dooryards. It is believed that the school should be felt as an influence for good through what the children do, at least to the limits of the district, and that they should become early partakers in that civic pride which seeks to make their neighborhood more healthful and beautiful. As an aid in realizing this idea you are earnestly requested to co-operate with the school in this effort by answering the following questions, to the end that the school may render the children all the assistance that may be necessary or possible:

1. Have you a small space in your dooryard that you are willing your children should use in planting flowers or vegetables or both? _____.

2. How large? Length, _____ feet. Width, _____ feet. (Let the children measure it and answer all other questions in this list that can be referred to them.)

3. Sunshine: ___ hours in forenoon; ___ hours in afternoon.

4. Soil: _____ sand, _____ clay, _____ loam, _____ depth _____.

5. Can it be easily watered? _____

6. Will you provide the children with a hoe and rake? _____

7. Do you wish suggestions as to the kinds of seeds to be planted? _____

8. Will you furnish the children with the necessary seeds, roots, or plants? _____ (The expense will be insignificant.)

9. Have you any locations suitable for vines? _____ Fence? _____ Wall? _____ Side of house? _____ Porch? _____

10. What other flower and vegetable beds will you have? _____

11. If yard space is not available, have you windows, or other places suitable for boxes? _____ (Boxes may be made in the manual-training room at the school. Let the children get the proper dimensions.)

12. Have you neighbors whose children are not in our school that would be interested in work of this kind?

Name _____

Address _____

(Signed by parent) _____

Address _____

Number of children _____

NOTE: If this paper is properly filled out and promptly returned, plans will be made at once for helping the children, who will be given opportunity from time to time to report to the whole school upon their work.

THE VERB: A QUESTION OF LOGIC AND OF PSYCHOLOGY.

THERE seems to be an essentially illogical conception, or at least a radically false teminology, among grammarians with reference to this fundamental part of speech. All of the English grammars thus far examined classify verbs as transitive, those having (or requiring) objects when in the active voice (most of them omit this clause); and intransitive, those which do not have (or require) objects when in the active voice.

Is this sound? The etymology of the terms will help us to decide: "transitive"—*trans* = "across," "over;" *eo*, *ire* = "go," "pass;" a "transitive" verb in the active voice should be therefore a verb which expresses an action that passes over from the actor (subject) to the recipient of the act (object). Then logically an "intransitive" verb in the active voice should be a verb which expresses an action that does not pass over from the actor (subject) to the recipient of the act (object); in other words, a verb which expresses an action that is complete in itself. Logically, also *be*, *become*, *seem*, etc., should be neither transitive nor intransitive, because they do not express action at all.

Of course, an argument from etymology proves nothing of itself, but the real question here is not one of etymology, but one of logic. The definition of a transitive verb suggested by the etymology of the word "transitive" is practically the same as that given in the grammars, for the fact that a verb has an object surely implies that it expresses action. The question is, then, admitting this definition of a transitive verb, which of the two definitions of "intransitive" given above follows? A moment's thought will show that one who accepts the given definition for a transitive verb ("a verb which expresses action that passes over from the actor to the recipient of the act") must say of the customary definition of an intransitive verb ("a verb that does not have an object") simply *non sequitur*. The defi-

nition that does follow is evidently the one suggested in the second paragraph above.

It appears, therefore, that verbs should be classified primarily, not as transitive and intransitive, but as *action* verbs (verbs of motion) and *being* verbs (verbs of rest). Latin grammars assume this, as appears in the familiar statement: "In, *into*, with the accusative after a verb of motion; *in* with the ablative after a verb of rest." Our own usage is exactly the same: He went (verb of motion) *into* the house; He was (verb of rest or being) *in* the house.

The following table represents an attempt to classify and define verbs on the basis of these facts:

I. Action verbs (verbs of motion).
  1. Transitive (in active voice and completed by object complements, or in passive voice).
    a) Active voice (subjects act).
    b) Passive voice (subjects acted upon).
  2. Intransitive (complete without objects).
    a) Active voice (subjects act).
    b) Passive voice impossible.

II. Being verbs (verbs of rest).
  1. Incomplete predication, copulative or attributive (completed by attribute complements).
    (Voice impossible—no action).
  2. Absolute (complete without attributes).
    (Voice impossible—no action).

This classification is frankly dualistic; it involves a distinction between subject and object, and between action and being. The problems involved in the latter antithesis are quite too difficult for examination in the present article. Only a brief discussion of the psychology of subject and object will be attempted, and this will be definitely limited to the pedagogical aspects of the question. Let the point of departure be Mr. Lewis's statement: "The unfortunate terms 'subject' and 'object' are still in use, though they cannot be defined, and though they reflect an outworn psychology."[1] One may acknowledge fully the authority of Mr. Lewis, and yet take issue with this statement. Surely the fact that these terms cannot be defined does not furnish a sufficient reason for abandoning them. On the

[1] ELEMENTARY SCHOOL TEACHER, November, 1902, p. 164.

same ground we should have to abandon the terms "space," "time," "thought," "mind," "matter," "electricity," "life"—in fact, almost all fundamental terms outside of mathematics and logic. So long as it is possible for us to recognize subjects and objects without difficulty and with complete agreement among ourselves, and to teach pupils to do the same, the question of definition remains a formal, not a practical, one. Nor is it altogether certain that these terms reflect an outworn psychology. The writer finds dualism very much in evidence both as a practice and as a theory. Indeed, outside of the school and the college it seems to be the usual belief; and certainly Professor James, to take one example from the inside, has much in common with the layman in this respect.

But this is not, after all, the point I wish to make. Suppose that this psychology were outworn, obsolete, for the adult, that would not necessarily mean that it would not be vital for the child. Must we not come to realize more and more the function of the incomplete and the crude in the child's life? After the first stage of undifferentiated masses of experience, there should follow a period of definite discrimination, and it is only when the individual has passed through this period of differentiation that he is able to make real reconciliations—to comprehend philosophical unities. Not that children are to learn anything which is false, and which must therefore be rejected in their later years; not even that certain things are to be taught as mere scaffolding, which serves its purpose and is torn down. The idea is rather to teach in each stage of the pupil's development those things to which his mind will most naturally respond in that stage. They must all be true, but they will perhaps be crude and incomplete from the adult standpoint. The final argument for the dualism of subject and object, and of action and being, is, then, that children of the grammar-school age are in the essentially dualistic stage of their development, and should not have forced upon them at that time the monistic conceptions of the adult.

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ARITHMETIC CONSIDERED AS A UTILITARIAN STUDY —WHAT SHOULD BE THE COURSE OF STUDY?

In preparing this paper two sources have been drawn on: first, the experience of business-men,and, second, the experience of teachers. In using the first source the aim was to secure the business-man's views of our arithmetic as it is taught; and the second source has been used to show the value of the utility idea in teaching arithmetic. The bearing of utility on the course of study has been considered practically and pedagogically.

In working out the business-man's point of view some twenty of the leading business-men of Indianapolis were seen. From most of these we received helpful suggestions, and from only a few, kindly regrets. These men represent many phases of the business world.

The data for the conclusions made in this paper were furnished by men holding such business positions as: president of the State Life Insurance Company, managers of department stores, general manager of the Indianapolis *News*, cashier of the State Bank, president of the Bowen-Merrill Book Co., head agent of the Union Station Ticket Office, president of the D. M. Parry Vehicle Co., head of the office force in the Atkins Saw Works, and head of the Indiana Stationary Co. The following set of questions, accompanied by either a copy of Cook and Cropsey's *Arithmetic* or a table of contents, was left with each of these men:

1. Check such divisions of the table of contents as you consider of no use in business.

2. Indicate the most important subjects in order of their value.

3. Add such other subjects as you believe would be of value to a business-man.

4. Tell us wherein you have found your employees strong in arithmetic and wherein weak.

5. In which do you consider pupils should receive more drill — in oral (mental) or written arithmetic?

6. Give us a summary of what you think schools ought to teach below the high school, and how the teaching may best be made real to the pupils.

The following are representative sets of answers:

I answer question No. 1 as follows: In sec. vi from "surface measure" to the end of the section; in sec. viii from "stock bonds and brokerage" to "interest," inclusive, from "bank discount" to end of section; in sec. x "the cone" to end of section, and all of the appendix—I consider of no value in business.

Question No. 2: The most important subjects in order of their value are, in my estimation, addition, subtraction, multiplication, division, fractions, percentage, ratio.

Question No. 3: I can suggest no other subjects that would be of value to a business-man.

Question No. 4: I find the majority of employees weak in their inability mentally to grasp subjects quickly and with sureness, a lack of confidence in themselves, and a desire to rely upon others rather than solve questions alone. In an arithmetical sense, they are fairly strong in addition and weak in multiplication.

Question No. 5: In mental arithmetic.

Question No. 6: I can suggest nothing that would be of greater value to one intending to enter a business career than systematic, ceaseless training in mental arithmetic. There is nothing to equal mental arithmetic for producing the rapid and accurate solver of most business propositions.

Respectfully,

EDWARD P. CLANCEY,
Manager Wasson's Department Store.

Answer No. 1: The following are not needed in most business transactions:

a) Measurement of the circle.
b) Circular measure.
c) Longitude and time.
d) International date line.
e) Calendar.
f) Life insurance.
g) The so-called "accurate interest."
h) Compound interest.
i) Present worth and true discount.
j) Foreign exchange.
k) Equation of payments.
l) Involution and evolution.
m) The right triangle.
n) Measurement of cones and pyramids.

o) Algebra questions.

Answer No. 2: The most important subjects are about as follows:

a) The four fundamental rules.

b) Fractions — common and decimal.

c) Federal money, bills, and statements.

d) Denominate numbers.

e) Percentage and its applications, as to profit and loss, commission, commercial discount, stocks, bonds, brokerage, insurance, and taxes.

f) Interest, partial payments, bank discount, and exchange.

Answer No. 3: Personal accounts, elements of bookkeeping — single and double entry.

Answer No. 4:

a) Among our employees we find the greatest deficiency in decimals and applications of percentage. In other business institutions a different condition would very likely prevail.

b) In no particular branch have I found them especially proficient.

Answer No. 5:

a) In mental arithmetic.

Answer No. 6: Below the high school all the subjects listed in answer to Questions 2 and 3 should be taught with the utmost care. In addition to these, the elements of mensuration and proportion should be taught, to give pupils some definite ideas of number relations.

To make the subjects in arithmetic real, each one possible should be approached from the concrete side, and following upon this should be an immense amount of mental drill by which the pupil is compelled to do much thinking, talking, and explaining. This process should be faithfully, I might say slavishly, pursued, until speed and accuracy are positively numbered among the pupil's powers. Review! Review!! Review!!!

ANDREW M. SWEENEY,
President Indiana State Life Insurance Company.

In making deduction from the answers received from these business-men one conclusion seems safe, viz., that our arithmetic work is sufficienly extensive. With almost no exception these men have nothing to add to the table of contents, and with equal unanimity, but much greater divergence of opinion, they consider that there have been too many subjects attempted to teach all of them well, and that certain subjects have absolutely no utilitarian value. All of these men are in favor of more drill work on the fundamentals and simpler operations.

Mr. Brown, manager of the Indianapolis *News*, states the case briefly:

The chief things are the simple things. We find that young men slight the very things essential in arithmetic frequently. Their additions are wrong and their multiplications are full of errors. Everlasting accuracy in these things is what business-men want. The cube root, and all the "fancy" theoretical information, are of no practical value. They are perhaps intellectually advantageous, and as information no doubt elevate the mind; but educate the young fellows to be accurate and know a few things well, if they cannot know all things.

With a single exception, the judgment of all these men is that oral arithmetic should receive the more drill. This opinion seems very emphatic. In answering most of the questions considerable conservatism is shown. But in the matter of oral arithmetic their almost universal judgment is that the return in business utility for time spent in oral arithmetic drill far exceeds that of time used in written work. Mr. Gay, of the New York Department Store, puts the matter as follows:

We would emphasize very strongly the importance of oral arithmetic. Here you can develop a mental concentration that is seldom acquired in written work. No great mental effort is necessary to solve a simple problem when the figures are on paper. In drilling a class in oral arithmetic a complete mental concentration is necessary for a correct answer. Let the teacher ask an assembled class to give the answer of 7½ yards at 6¾ cents, 2½ at 2⅛ cents, etc.; what is the difference between $4.80 and $3.65; add $4.40 to $6.80; or divide 68 into $3.40.

In answer to the fourth question, "Tell us wherein you have found your employees strong in arithmetic and wherein weak," these men are unanimously silent as to strong points. They have found their employees especially weak in accuracy of addition and multiplication, and ability to handle problems involving decimals and percentage.

Naturally, great division of opinion is found in the answers to the first and second questions. In answer to the first question, "Check such divisions of the table of contents as you consider of no value in business," most men would omit such subjects as measurement of circle, the money of foreign countries, longitude and time, involution and evolution. Many would also strike out cube root and all of the work in the latter part of the arithmetic. Few report factoring of any utilitarian value.

In answer to the second question, "Indicate the most impor-

tant subjects in order of their value," we find the expected unanimity regarding the prime importance of the fundamental operations, common fractions, and a rather unexpected emphasis on decimal fractions. Next to these percentage is placed in almost every answer. Regarding the applications of percentage, we also find in the answers what we might expect, viz., a wholesome business conservatism regarding the relative importance of these subdivisions. With an insight strikingly pedagogical, in the best sense of that word, these business-men see that the prime utilitarian importance of this or that application of percentage may be determined only by the child's future and present environment. This adaptation of utilitarian arithmetic comes out in the second part of this paper.

In considering the utilitarian arithmetic, as taught by certain teachers, I have endeavored to select only that work which seems adapted to the environment of Indianapolis pupils. We find in Dr. Stanley Hall's *Ideal School* the secret of the special value of the utilitarian point of view in the arithmetic of the upper grammar grades.

If Stanley Hall is right, the time to realize on this crying need for drill work as shown in the reports of these business-men is between the ages of eight and thirteen. If I understand Stanley Hall's theory correctly, between twelve and thirteen the child begins to change from an automatic being into a reasoning, inquiring individual. It would seem that this is the period when the interest in the utilitarian side of life begins to be dominant. If this be true, children in the seventh grade should begin to get the utilitarian point of view.

We have felt that in studying denominate numbers it is well for the 7 B pupils to realize the measuring idea. A discussion of such questions as the following prepare pupils to lay hold of the subject in a broad utilitarian manner.

1. Why do we measure at all?
2. If supply were unlimited, would measuring be necessary?
3. Do we measure in other subjects—in English, in history, etc.?

The following is one pupil's answer to these questions:

ABBIE COOK, 7 B2, 12–2–1901.

MEASURING.

Measuring is a process of finding how many times a unit or a part of itself is contained in the whole. We measure for economy and convenience.

If we had no ways of measuring some people would get more than their share or would pay more for an article than it was worth or not as much as it was worth. Carpenters would buy more material for a house than they would need and they would need very large sheets of paper on which to draw their plans. These would be very inconvenient to carry and to handle and by measuring they can make smaller plans. Every problem in arithmetic contains measuring in some form. Some by measuring distances and others by measuring articles of food.

Surface measuring was taken up with actual computations of schoolroom, yard, etc. The remaining denominate number subjects were worked out in connection with the manual training. The boys built a house to scale. The utilitarian value of lumber measure was immediately apparent, and as the house progressed the need of being able to compute surface measure for lathing, plastering, papering, and carpeting became very real.

The utilitarian value of these divisions of arithmetic is self-evident, and the pedagogical value of presenting them from the utility standpoint became painfully evident when a competent substitute teacher took up the work without the utilitarian point of view.

In the percentage work of the 7 A's a somewhat different problem presents itself. The various applications of percentage are many, and comparatively few of them have a utilitarian value for every pupil. Here also the *scene* of utility changes from the comparatively simple activities of the 7 B work, which concern the home life of practically every child, to the specialized activities of the business-man. How to place the 7 A's in this business atmosphere is the question which confronts the teacher who is considering arithmetic as a utilitarian study. Several schemes have been tried to my knowledge. The one which seems to work best is that of the children imagining a boy compelled to begin work at the end of his grammar-school course. The first few recitation periods are largely given up to working out the plan and following this boy as he applies for and secures a position in a grocery store.

Some of the advantages of selecting the grocery business for this particular class are seen in the facts that fully one-third of the pupils had either parents or near relation in the grocery business, fully one-third of the boys had worked in a grocery store, and all the pupils lived in easy reach of the corner groceryman, of whom they were required to get their knowledge first-hand. The pupils were encouraged to secure order blanks, actual bills of goods, etc., from their grocery adviser. These were mounted, and, together with an account of the boy's experience, make part of a notebook record. The time for working up the notebook record need not all be taken from the arithmetic periods, for the working out of these experiences is interesting and valuable composition drill.

The boy's work of the first day is simple; but the children's boy is always bright and anxious to learn. He is consequently hurried through his first experiences of sweeping, and taking and delivering orders, and is soon sent to the wholesale house to pay a bill. The employer is always kind and allows the boy to foot the bill. The boy finds that the amount given him with which to pay the bill does not equal the footing. The kind employer then leads the boy to see that the bill is being paid within ten days, and a discount is being allowed. From bills secured of grocers, children learn usual discounts and make bills of their own. These bills are footed, but the footing is not placed on the bills. Part of an assignment is to examine the items of a classmate's bill and compute the footing. On returning these bills to the owners there are always some differences in footings. The items are then read by the teacher and computations are made by the pupils as oral arithmetic. The pupils keep the results of the computations for addition. The items being finished, each pupil adds. After different answers have been reported, it is evident that some are wrong. At this point the pupils readily realize the utilitarian value of drill in addition. Where errors were made, each pupil feels the employer of his boy reproaching him, *i. e.*, reproaching the pupil. The matter is no longer one between the teacher and pupil, but the situation has become that of a business relation. So readily is this transi-

tion made from the imagined boy to the pupil himself that in the first week's work pupils had of themselves begun to speak of "Flora's bill," "Thomas's order," etc., and so real does this become that it is expressed in the titles of some of the note-books, *e. g.*, "My Experience in the Grocery Business." With a class in this condition the teacher may give as long and otherwise tedious columns of numbers for addition drill as he pleases, without any lack of response from even the slowest of girls or the most self-satisfied of boys. The arithmetic is no longer dictation work. The motive is from within.

Boys who seemed on the verge of dropping out of school were caught by this scheme and their whole work improved. One case is particularly worth noting. A boy who had never done anything for anybody became so enthusiastic with his work that not only his arithmetic improved, but also his other work, to such an extent that he was allowed to take 8 B arithmetic in addition to 7 A work.

In the grocery experience may be introduced, besides bills and their discount, interest on overdue bills, gain-and-loss computations, taxes, insurance, commercial discount, and—in a less direct relation—commission.

The utilitarian value of these subjects was made potent by having the boy do his work well a few years and then decide he wished to try the grocery business for himself. He rented part of his employer's store and handled a little stock of flour, brooms, and potatoes. This necessitated his paying part of the expenses. In order to determine the amount of these expenses, each pupil secured a list of running expenses from his grocer. It was then decided that there were still other expenses, one item of which was taxes. This subject was then studied; likewise insurance. The class determined that the boy should rent one-sixth of the store and pay one-sixth of the expenses. After all the above subjects had been studied and the expenses computed, the children asked their groceryman about the selling price of the goods the boy had bought, and made out orders enough to sell all goods. Some might be at a discount to save inventory. After all goods were sold and expenses deducted, many pupils

found that they had been doing a losing business, and readily saw the need of careful calculation in business.

In finding the percentage of gain or loss many found themselves lamentably weak in decimal computations. It required no urging from the teacher to get these pupils to do the most grind kind of drill work for getting the decimal point in the right place. They seemed to feel that their employers could not retain them unless they improved. They could hardly have got this feeling except by considering arithmetic as a utilitarian study.

A school bank seems the best means of taking up interest and its applications. Our 8 B's have devoted one period per week to the activities of banking. The result has heen a decided gain in general interest and a rather startling revelation, viz., that, with the organized self-direction among the pupils, two teachers easily assisted seventy-five pupils to teach themselves. The 8 B's organized their part of the school into a city corporation and were paid for service. Money was thus placed in circulation. A place of deposit was needed; a bank was organized; and there soon developed a need of bank books, deposit slips, checks, notes, etc.

Considered as a utilitarian subject, there is little arithmetic left for the 8 A's except review work and a study of mensuration with the algebra point of view. However, it would seem that such subjects as United States revenue, if taught at all to Indianapolis children, should be left until the tariff question is worked out in the 8 A history. It is very difficult for Indianapolis children to realize its utility before such historical study is made. The 8 A seems a fit time for special stress on drill for accuracy which our business friends report so sorely needed. The 8 A pupil should have a rich store of concrete thoughts on all utilitarian subjects. Having this concrete foundation upon which to build the review work, the teacher may legitimately give much time to working for what Mr. Brown, of the *News*, calls "everlasting accuracy."

Considering arithmetic as a utilitarian study, the conclusions from the foregoing, briefly stated, seem to be these: that, on the

evidence of business-men, the pupils passing through the schools are deficient in the arithmetic needed in business; that there are some subjects being taught which have no utilitarian value; that oral arithmetic is of much the greater value for business training; that the children of the upper grammar grades are sufficiently developed to get the utilitarian point of view; and that the arithmetic work itself is best taught in its utilitarian setting.

In the light of these deductions, it would seem that the course of study should first lay stress on the fundamentals and such general principles as underlie all business operations, rather than on intricate problems; second, that the course should omit or postpone until the high school such subjects as have no utility in the business world; third, the major amount of drill should be given to such computations as make for proficiency in oral or mental operations; fourth, the course in advanced arithmetic should be adapted to the environment of the Indianapolis pupils and should be sufficiently informal to allow adaptations to the dominant business interests of the pupils of different districts; and, fifth, provisions should be made for surrounding upper-grade pupils with the utilitarian atmosphere of each successive topic studied.

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EXPRESSION.

One of the marked changes in the school of today, as compared with that of a few years ago, is the time and importance given to expression. As the study of the individual child has taken the place of mass work, and freedom the place of restraint and unreasoning obedience; as personal observation, contact with life, and real knowledge of things have come to be recognized as more potent than text-books — so expression has taken the place of repression, and joy and genuineness the place of dull sadness, self-concealment, and self-consciousness. The workshop, the cooking-room, the garden, the laboratory, and the studio, through which the child relates himself in a real way to the world's work and to people, and realizes his own power and use, are comparatively new factors to be dealt with in a course of study. "I saw that the children were not happy in the school, and I knew that something was wrong with the school," said Colonel Parker; "that was the beginning of my work."

With this change have come serious evils. Many of the teachers who have observed and studied the children, and who have felt the thinness and poverty of the school life, the failure to satisfy the child's craving for self-expression and growth, have been hampered by a lack of knowledge of the principles governing the use of these modes of expression, as well as by a lack of skill in technique; for nowhere is the skill of the teacher, the power to do, of so much importance as in the elementary school. The result has been an overcrowded curriculum, drill in forms of expression, and ultimate absorption in these forms which, instead of being obedient servants transmitting thought and feeling, soon become masters, an end and law unto themselves. The practical working out of the principle that one can express only what is his own, only what he can assimilate of reality, truth, and beauty, we find most difficult in the school, because the product of expression is so valuable in our eyes

that technical skill tends to become the only measure of success. Expression in education means all that it does in life. It is work developed by community interests; it is a social function, and should serve the social organism. There must be a real demand felt by the child for what he produces. The desire to meet this demand creates an interest and moves him to study, to investigate materials, laws, forces, facts in science and in history, and apply all these to the improvement of his work. His own product becomes an incentive to closer observation, to fuller study and greater technical skill. Technique is not all external. It is the fitting of the tools and material to the spirit, which is internal. When the community life makes a genuine, adequate motive for expression, and supplies conditions and material for study and work, growth in technical skill is assured. Technique is a power, but it must be exalted by a fulness of life, a richness of personality — that for which it exists. With the child each expression — no matter how crude, if it is a free utterance of his own power — is a joy. It is his all at that moment. His only standard is what he thinks and feels. He is not trying to repeat a model, but simply to realize his own thought; and whatever he makes — his play, his painting, his drawing — should be treated reverently. Who knows what it means to him? Freedom to work out what he sees and thinks is his right. Let us not intrude and impose our grown-up ideas upon him, but study to know what he is reaching out after, and try to apprehend his moods, that we may feel his desire for growth — the unconscious demand that his spirit is making for his own everlasting good; and then co-operate with him in working it out.

Expression is a necessity of growth. The tendency of all thought is to manifest itself in some kind of form. Its vitality depends largely upon its embodiment in expression. Inhibition or arrest of this natural flowing out of a living force reacts to dissipate energy and to destroy that unity of mind and body which is the true condition of being. Free expression reacts to intensify, clarify, and vivify thought. Each expression is an incentive to another, because it brings a new recognition; a clearer, stronger image, which in turn manifests itself; and

so thought and expression constantly act and react upon each other; there is no end, but instead an ever-widening circle. Expression is, therefore, a mode of study. Work in wood and metal, gardening, dyeing, spinning, weaving, sewing, decorative needlework, printing, bookbinding, pottery, as well as modeling, painting, drawing, dramatics, and music, put meaning, vitality, and motive into the search for knowledge, as well as discrimination in its use.

Poetry, language, and the drama, painting, and music are traditional forms: they are tools, the embodiment of laws of the mind, a part of the accumulation of the race, the inheritance to which we are born and which we accept as we do all other social institutions. The world is full of light — beautiful forms, colors, and sounds. The child is susceptible to all this beauty. Brought into contact with pictures, statuary, the voices of men and women, and being imitative, he tends to express himself through these forms, modifying each by his own individual way of using it. The special appeal which beauty of color, light, and shade make to him, and the emotions they arouse, he expresses with paint and brush; ideas of form he molds into the clay; his larger emotions, feelings that he cannot put into words alone, he expresses through music. In the drama and dramatic action he brings together all his experiences and combines them into one supreme act. Charlotte Cushman once said:

> I think I love and reverence all the arts equally, only putting my own just above the others because in it I recognize the union and culmination of them all. To me it seems as if, when God conceived the world, that was poetry; when he formed it, that was sculpture; when he colored it, that was painting; when he peopled it with living beings, that was divine, eternal drama.

Searching for the principles underlying any art and the laws governing it, leads up to a point where we see that all the arts are one, and that the only art is the expression of an artistic individual through a trained technique, be that technique what it may. To speak, therefore, of the drama is to speak in a broad way of painting, music, and sculpture; for the drama embraces them all, and, if we include the musical drama, is the most perfect outlet for human emotions. The passion of the

child for acting out in his own body phases of life that he observes, and adding his own interpretation to these, of stretching his own personality to include other life, is one of the deepest-seated in the human soul; yet perhaps no other mode of self-expression has been so little used in the schools. Outside of the kindergarten it is hardly recognized as having any function, if we except the spasmodic dramatics in the high schools and colleges which are almost wholly isolated from the regular work.

Dramatic expression plays an important part in human life. The theater, an offspring of a high civilization, is but one of the small spheres of dramatic art. "All the world's a stage, and all the men and women merely players." The background of this large playhouse is the social life into which each is born. Life is an incessant exercise of the dramatic faculty. Each of us is all his life engaged in reading other people, observing them, studying them, and consciously or unconsciously imitating what pleases, or avoiding what seems unworthy. Dramatic art is based on the fact that the inner life is revealed by words, tones of voice, movements, and actions. Each one of us is more or less skilled in reading the meaning of these signs; we judge of our fellows by those he puts forth, and by imitating them we put ourselves into his place and partake of his experiences. Through this door the actor enters into the character of another, whether that other be real or created by the imagination.

Many manifestations of this dramatic instinct have been observed among animals; they express themselves by sound and movement; they know the meaning of these in their associates, and express their sympathy by their responses. They respond to signs of fear, and are thrown into a panic when it is exhibited in their leader. They have their plays, sham battles, and races; they pretend to be what they are not; they decoy, beguile, and mock each other; Molly Cotton Tail, Redruff, Lobo, and Wully are great actors in the tragedies which bear their names.

The most primitive peoples have their dances, festivals, and celebrations of every joyful event—the seedtime, the harvest, the hunt, the victory in war. They imitate birds and

animals and pantomime the great passions — love, jealousy, and hatred; they act out sham battles; they entertain friends and strangers by prolonged dramatic festivals. Robert Louis Stevenson describes a five-days' festival given in his honor by the inhabitants of one of the South Sea Islands, in which they combined music, the dance, and dramatic action. The child begins very early to imitate the actions of those around him. He selects this or that out of his environment which interests and appeals to him, and, by imitation, finds out about it and about himself. That is his way of studying and experimenting with his materials, of getting at the heart of things, and of feeling and developing his own powers.

Whatever other function imitation may have in the development of the child, the beginnings of dramatic art are bound up in this tendency to imitate, which in greater or less degree is exhibited by all children. Anyone observing children knows how they imitate sounds and movements; repeat words, rhymes, and jingles; how they reproduce the life about them in their little dramatic plays, adding individual touches here and there, and even new conditions, and sometimes continuing in certain characters for days at a time. Everybody knows the animal games, the doll dramas, the housekeeping plays, the school and church plays, the personating of the father and mother, the teacher and pastor. Indeed, all the social life about the children is reproduced with startling accuracy by the little actors. They delight in the subtle influence of costume, of putting on the clothes of another, and so getting another self and filling out the personality.[1]

As the children grow older they begin to group themselves together to represent scenes from history and story — delighting in heroic deeds and in the witchery and power of the fairies, demons, goblins, and spirits that people the old literature. To these beginnings we may easily trace the organized, developed drama of civilization, which is such a widespread, far-reaching influence in the social life of today. Almost every human prob-

[1] In the May, 1901, number of this magazine are a number of memories and observations of dramatic experiences by the professional class of that year.

lem, every phase of life, is reproduced on the modern stage. Never has the theater been so popular. The drama of the great passions of patriotism, of human liberty, ambition, and revenge, with their terrible conflicts, their pictures of failures, suffering, and death; the drama of the individual, of the family, and the affections of simple, everyday life, with its alternating hopes and fears, struggles, victories, and defeats, fills the theatres with spectators—because the drama answers a universal demand; because men are interested in human nature and its individual manifestations; because they love to be moved, to have the monotony of their lives broken up and their nobler selves startled into action.

Noting the universality of this dramatic instinct and the widespread love and delight of people old and young among all nations in dramatic performances, it would seem as though it could not be ignored in an educational scheme.

In the Elementary School we are trying to solve some of the problems which group themselves about this kind of work. The primary grades act out in a broad way, make objective, the stories and poems that appeal to them. They show great delight in the festivals and dances of the early peoples, in the home life, industries, weaving, cooking; and are always anxious to illustrate these in their own person. In these grades these illustrations are for the most part pantomimic. The children have not sufficient control of language, and at this stage stress cannot be laid upon it; but the situations are a great stimuli to speech when the action alone is inadequate to the expression of the thought. There seems to be nothing transient in their love of dramatics; the older children are never happier than when allowed to express themselves in dramatic form. They organize their plays better to make them tell their stories more completely. They learn the principles of dramatic construction by the actual fitting of their work to the necessities of time and space, character and situation. The expression becomes disciplined through technique. Language grows fuller, although always subservient to the action, which it clears up and moves on. In the primary and intermediate grades the children construct their own plays, suggest the action and stage business, write the speeches, plan,

and often make, the scenery and costumes. All the skill and knowledge at their command thus come into play. They exercise judgment and taste in choosing, rejecting, and determining values and proportions. The slow child is stimulated into action, while the impulsive child must restrain himself until he sees the whole, else his action has no meaning. In the upper grades the children study some of the great dramas and read aloud or act out scenes from them. They are chiefly interested in life, and the poetic drama gives them the freedom of the world, for the drama is life concentrated, intensified. It fastens on the real meaning of a bit of life or of literature; gets the kernel out of any experience of human life; it makes clear and inevitable the retribution of vice and the reward of virtue; it gives opportunity for the study of character in the light of completed action; it shows the struggle between good and evil, and the insistence and fatality of character, teaching morality and religion by implication.

Expression, either in voice alone or in both voice and action, is an incentive to the deepest study and appreciation of literature. The knowledge required is so definite and details are so important in dramatic presentation that the necessity of returning again and again to the text is forced upon the student. The individual is brought into living contact with a great variety of people and influences which supplements his own experiences, expands and multiplies his own personality, broadens his sympathies, deepens his emotional nature, trains his body into free spontaneous controlled action, and adds an everlasting charm, variety, and freshness to life.

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BOOK REVIEWS.

The Western Slope. By CELIA PARKER WOOLLEY. Evanston, Ill.: William S. Lord, 1903. Pp. 250. $1.25, postpaid.

ALTHOUGH this is not a book on education, it presents in leisurely fashion the author's restful views on "the way we have come" during the last thirty years, educationally, religiously, and socially. To look at the world about us through the eyes of this genial, philosophic-minded woman is well worth one's while.

Mrs. Woolley is a panegyrist of, not youth, nor old age, but the years of life "from thirty to fifty and a little beyond"—that is, *The Western Slope.* That a club woman who has been more or less in the thick of the various reform movements for the last thirty years should have a serene appreciation of the sunshine of life's afternoon is a good sign of the times. Surely, not only the will to believe, but also the will to be genial, exist within her soul. Some lines, which are the writer's foreword, are so simple, so full of imagery, grace, and beauty, that I give them:

Down the hill the rest of the way,
And quite past noon the time of day.

A gentle slope, a sunset sky,
Halting feet, but a lifted eye.

Body growing tired and old;
Spirit will some day slip its hold.

Heart that has gained and lost with the rest,
And learned just loving is the best.

Afternoon, and this peaceful slope;
The sunset sky with its tale of hope.

Mrs. Woolley's pleasure in her recollections of the spell downs of former day and the other emulative methods of the school which made "beating and getting ahead" a basis of interest is not shared by all the residents of the "western slope." I well remember the experience of a shy young person who in one day was initiated into a new school and made acquainted with the horrors of that rack of torture — the spell down. She saw then for the first time children nerved for battle, or pale and tearful from chagrin because they had been the last chosen, and a few dull ones, whom evidently no one expected to spell, reddening painfully under the slights and stings in the tones of the leaders, and the smiles and glances of other children, joining the ranks only at the point of the bayonet. Then, when the battle had begun, came the flush of conquest into some faces, or of rage at defeat into others, and the driven, hunted look into the faces of the helpless children who "could not spell." She longed to take the unhappy ones by the hand and say: "Never mind, for, though I can spell, I could never have learned this way."

Some valuable suggestions are made to women who speak in public discussions:

It is the merit and weakness of the average woman speaker to suppose she must have a definite line of thought to follow, a cause to serve, an object to gain. The result is that when she has nothing more

to say she stops talking and sits down; thus she often fails in finish and the gift of climax. I doubt if many women speakers know what climax is. They stop abruptly, as I have said, when they are through, or rather when they have lost their immediate clue. All this is but saying that, while women have the gift of public speaking, they have not yet, as a rule, acquired the art; and the art consists in something besides the proper chest tone, the right sort of gesture and pose. It sounds absurd, but the art of public speaking consists largely in the ability to keep on talking. Most men speakers have this gift in wearisome perfection. Much as I have suffered from this talent of theirs, of interminability, I admire it also. Few women have learned to think on their feet.

The story of the successes of The Village Improvement Club is entertaining and convincing.

In this book one is able to get away from that "too personal point of view which hinders understanding all round; a tyrannous and insistent ego which brings every matter to be judged, all human values, to the bar of some preconceived wish or opinion."

LAURA T. BRAYTON.

HYDE PARK HIGH SCHOOL.

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Barnes's School History of the United States: Being a Revision of a Brief History of the United States. By John Dorman Steele and Esther Baker Steele. New York: American Book Co., 1903. Pp. 452, 12mo; cloth.

A Boy on the Farm at Work and at Play. By Jacob Abbott. Edited by Clifton Johnson, with an Introduction by Dr. Lyman Abbott. New York: American Book Co., 1903. Pp. 182, 12mo; cloth.

Botany All the Year Round: A Practical Text-Book for Schools. By B. F. Andrews. New York: American Book Co., 1903. Pp. 302, 12mo; cloth.

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The Western Slope. By CELIA PARKER WOOLLEY. Evanston, Ill.: William S. Lord, 1903. Pp. 250. $1.25, postpaid; 12mo; cloth.